WHAT WOOD STAINS WORK BEST? Find out on page 58

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ISSUE 114 APRIL 1999

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See page 70.

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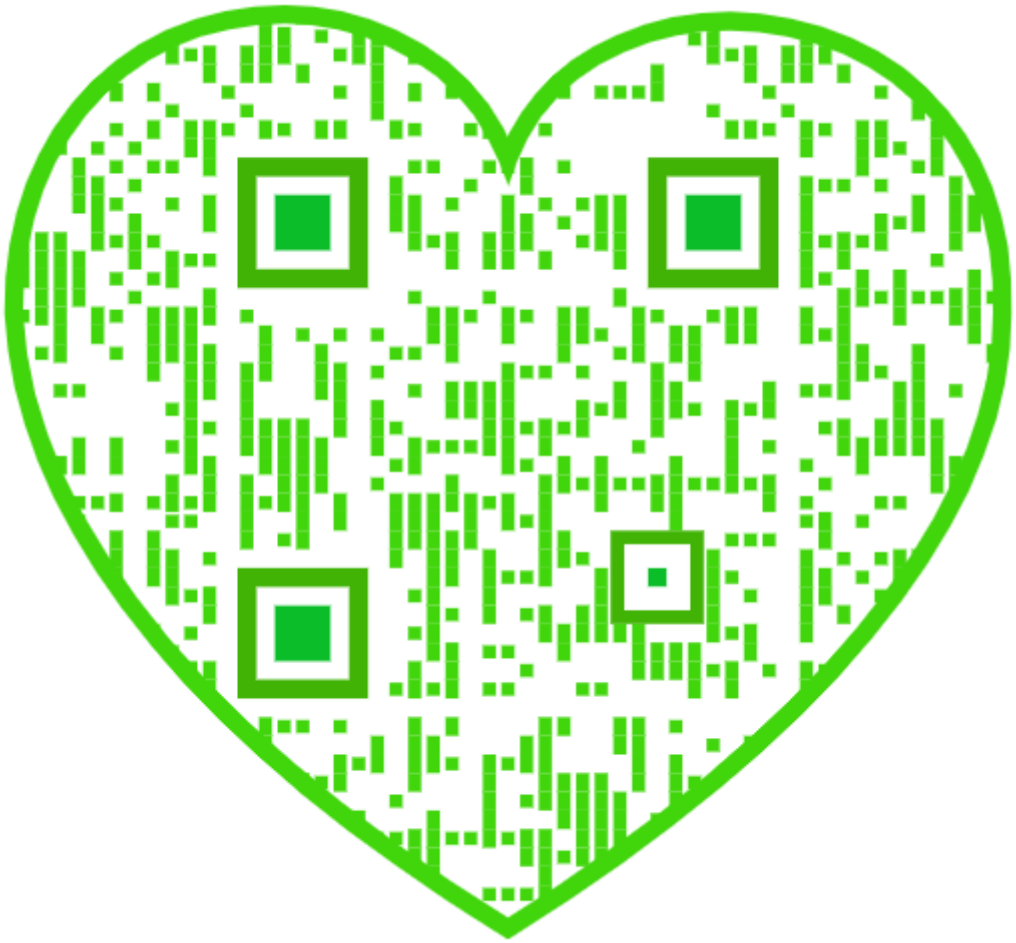

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ISSUE NO. 114 APRIL 1999
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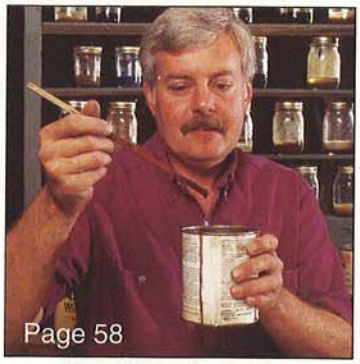
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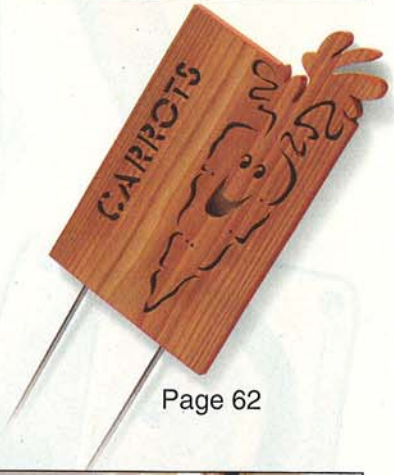

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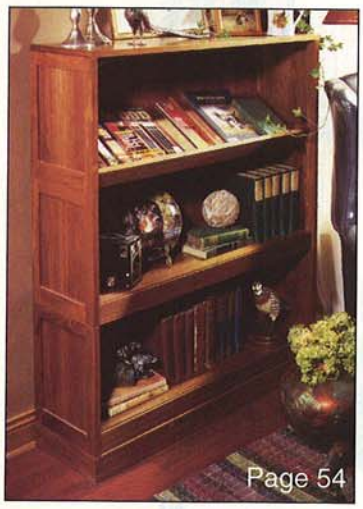
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THE EDITOR'S ANGLE

Have you stopped by for a visit yet?

Sometimes, one or two woodworkers stop by our shop to chat. Other times, we host entire families. Here, recently retired Art Director Lee Gatzke talks tablesaws with Bob and Liz Kelly, their children, and Vicky Hedgecock. They're from Florida.

Way back in 1985, in issue #7, I invited *WOOD*® magazine readers to stop by for a visit with the staff and me. In the intervening years, literally thousands of you have taken me up on the invite.

Not only have we enjoyed meeting you, we've also drawn inspiration from visiting with you. It's a great experience getting feedback directly from those you're working so very hard to please.

Our records show, though, that there are still a few of you who have not come to see us yet, so please consider this your personal invitation. We host tours from 9 a.m. to 11 a.m. and from 1:00 pm to 3:00 pm Monday through Friday, except for holidays. And we're still in the same place we've always been—1912 Grand Avenue, Des Moines, Iowa.

So if you happen to be passing through Des Moines on your way somewhere, remember that the coffeepot is plugged in and we've got a Styrofoam cup waiting with your name on it. Please let us know that you're coming before you get here, alright? That way, we'll be certain to have someone from our staff lined up and ready to host you. Our number here is 800/374-9663, option 2. Barb Helps, our Art Business Office Secretary, will be happy to assist you.

Maybe you're sitting there wondering, "Doesn't entertaining lots of readers at the *WOOD* magazine headquarters take a lot of time?" The answer is a decided "Yes!" But please know that we're more than happy to talk woodworking with you anytime, anywhere. And that's a fact.

We'll see you soon.

Larry Clayton

Photograph: Bill Krier

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Photo: Pat Shanklin

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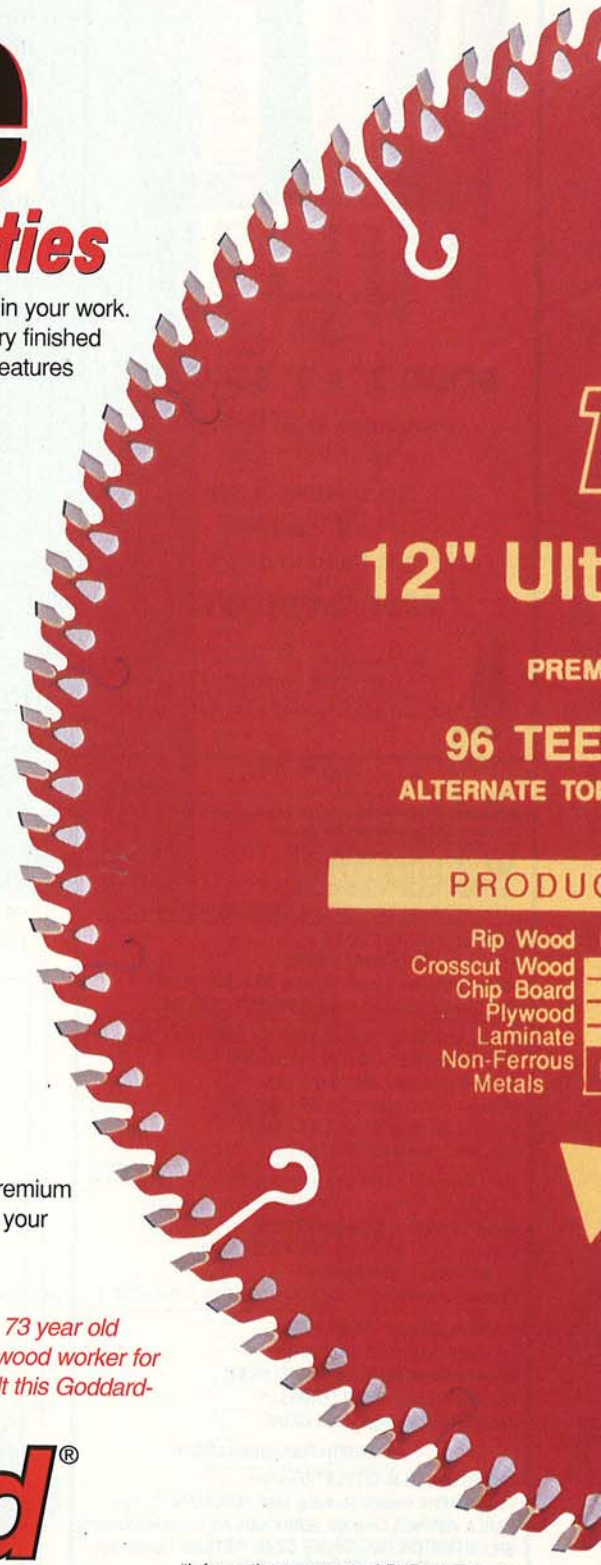

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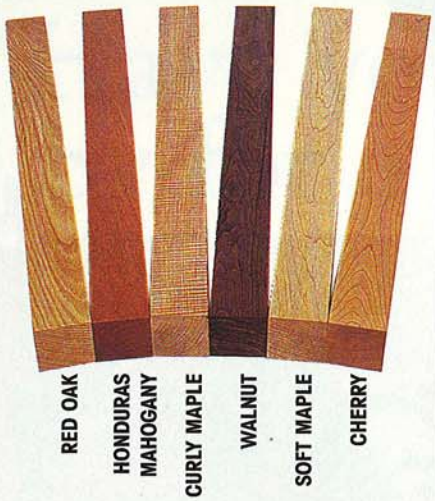

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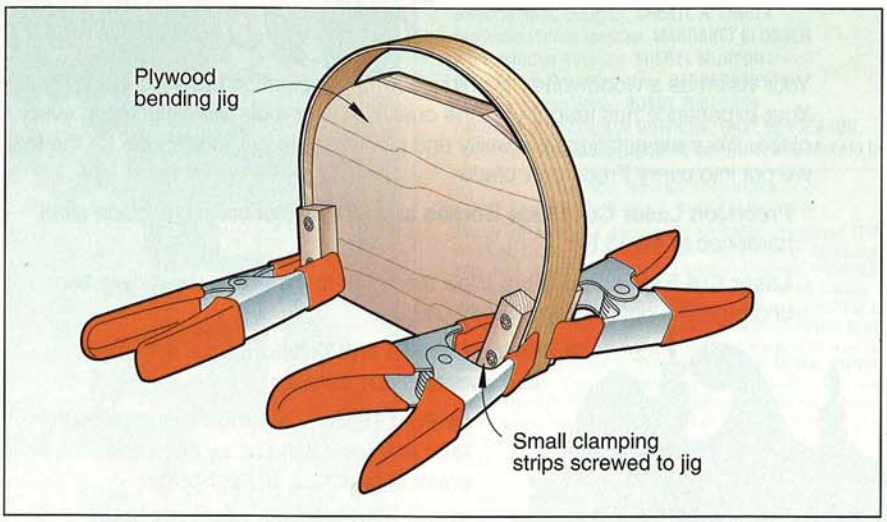
TALKING BACK

This handle jig works better

Issue #93 of *WOOD*® magazine featured a laced wooden basket that went over big with my family in the form of Christmas presents. I used the mail-order kit, which saved me a lot of time. I thought other readers might benefit from a change I made in the plan to ease construction.

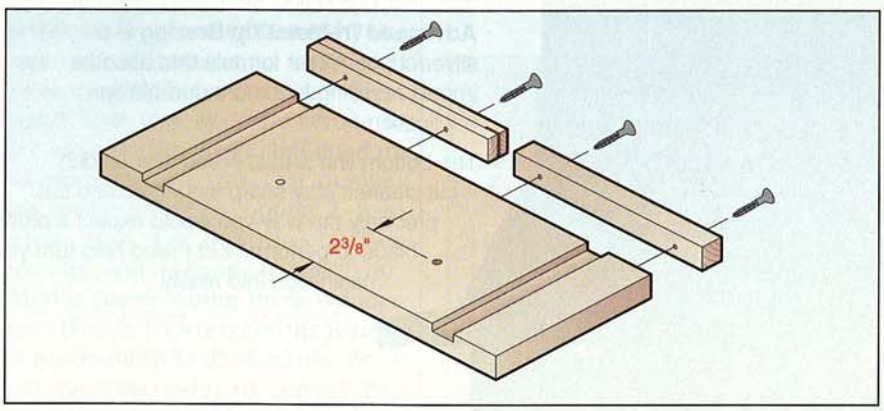
Because I didn't want a sharp bend at the point where the handle leaves the top of the basket side, I modified the bending jig as shown *below*. I also found rubber bands difficult to handle in this application, so I used spring clamps instead. I added small strips on each side of the bending jig to facilitate the type of spring clamps with plastic jaws to avoid metal parts staining the wood.

—Ralph Ekstrom, Lincoln, Neb.



A resaw jig correction

For those of you planning to build the resaw jig featured in issue #109 of *WOOD* magazine, we have a correction. In the base of the jig, the holes shown 1⅝" from the back, where the carriage bolts and T-knobs go, should actually be placed 2⅜" from the back as shown *below*.



Speak your mind

We welcome your comments, criticisms, suggestions, and yes, even compliments. We'll publish letters of the greatest benefit to our readers. Write to: Talking Back, *WOOD* Magazine, 1716 Locust St., GA310, Des Moines, IA 50309-3023

Continued on page 8

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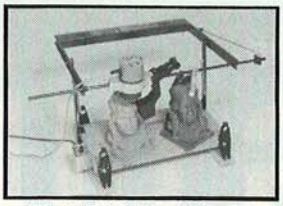
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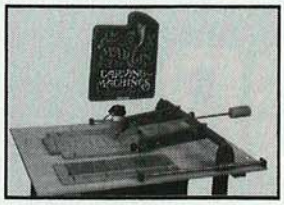
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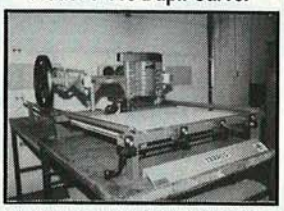
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Circle No. 75

TALKING BACK

Continued from page 6

Put your stave test pieces to good use

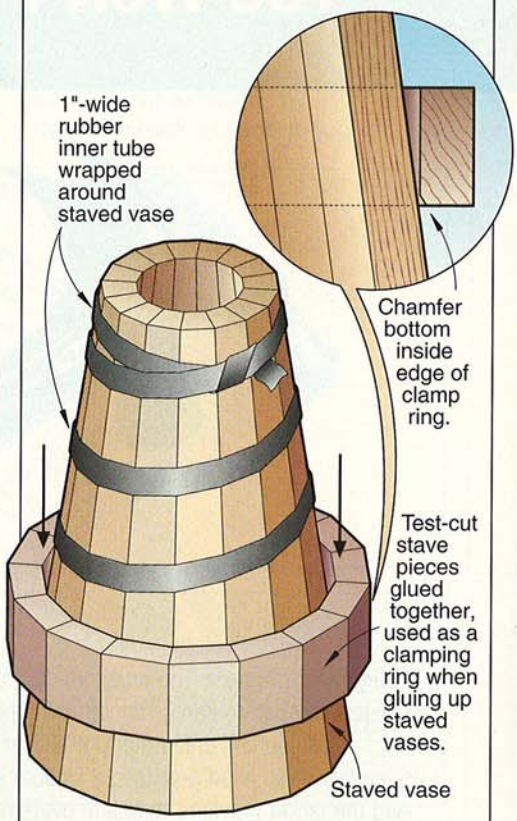
In issue #103 of *WOOD*® magazine you describe how to make a wonderful staved vase. I'd like to add a couple of tips to aid folks with the construction of this beauty.

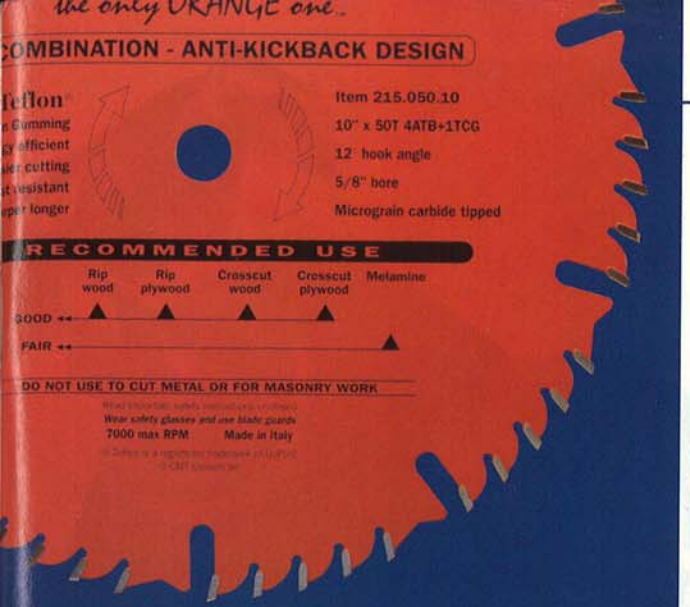
First, don't toss out the test pieces that you cut. Instead glue up a set of the shorter pieces that were "on the money." After the glue sets up, sand the inside edges to a slight chamfer. Use these scraps as a vase clamp.

After you glue and roll your vase as directed in the article, wrap the large end with kitchen plastic-wrap. This will keep the clamp from adhering to the vase. Drop the scrap clamp down over the wrap, and tap it with a mallet until tight and horizontal. This clamp will make the vase joints much tighter than the tape alone can achieve, and makes lining up the ends easier.

I've also found that you can pull the rest of the assembly tighter by using inner-tube straps instead of tape as directed. Wrapping a 1"-wide strip 3 to 4 times around the vase really pulls the assembly together.

—Harry Burchardt, Decatur, Ga.


1"-wide rubber inner tube wrapped around staved vase
Chamfer bottom inside edge of clamp ring.
Test-cut stave pieces glued together, used as a clamping ring when gluing up staved vases.
Staved vase



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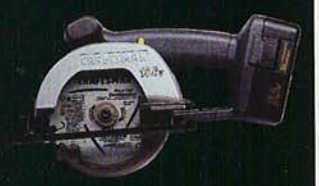

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Veneers And Inlays

A forest full of choices awaits you

One of the most enjoyable aspects of veneer work lies in selecting the woods and inlays for a decorative project. As you'll see here, choices abound. Before buying, study up on what's available and what will work best for your project. Here's what you'll likely find.

Note: *You can purchase veneer by the square foot at a woodworking specialty store or through a woodworking catalog. (See our Buying Guide,* page 14.*) Inlays are sold by linear feet or by the piece.*

To learn the basics on how to work with veneer and inlays, see page 70. *Then, try building the stylish keepsake box on* page 76.

• *Standard (or raw) veneer*

Made when a cutter knife slices across the face of a water-soaked half log, this so-called flat-cut veneer offers patterns that range from tapering grain to a distinctive cathedral look. (See *below.*) The raw veneers are then dried and stacked in flitches in numbered order, making them ideal for bookmatching. (This is where sequentially sawn pieces of near-identical grain patterns are placed side by side in a veneering project, such as in a cabinet door or drawer front.)

Thicknesses of standard veneer measure 1/28" to 1/42". Sheets come in random widths from 3" to 12", and 3' to 10' long. Costs run from $.50 to $2.75 per square foot, depending on species and availablity.

• *Figured veneer*

Flat-cut similarly to standard veneer and also stacked in flitches, only with an eye toward capturing the most fanciful grain patterns, figured veneers are the showiest of the veneer lineup. Woodworkers favor them most for a variety of highly decorative projects, from box tops to drawer fronts.

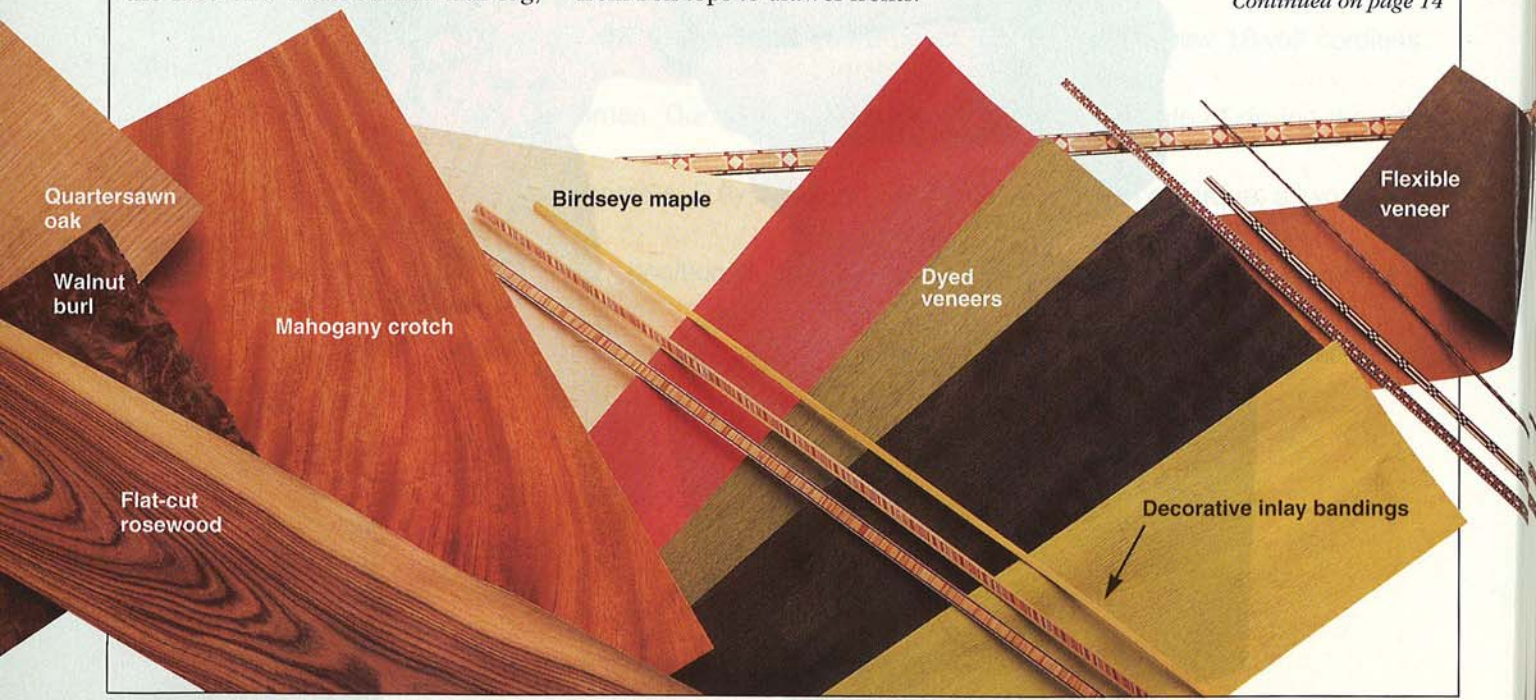
Here, the veneer slices come from tree parts where extreme grain patterns are manifested—growths, roots, and places where trunks split into large branches. From these we get burls, curly, quilted, and crotch woods. Yet, figured veneers tend to be unstable. Often, sheets of figured veneer come wavy, containing cracks and pinholes. That means flattening the figured veneer pieces and doing minor repair work. (See *page 71.*)

Though figured veneer thickness replicates that of other flat-cut veneer, pieces tend to be smaller, starting around 10×10". Prices are higher than standard veneer, with premium walnut and elm burls costing more than $4 per square foot. To get the best look and to avoid problems in the veneer, allow for 50 percent waste when ordering.

• *Quartersawn veneer*

This veneer type comes from logs quartered lengthwise through which

Continued on page 14



Unique base is designed to mount on 2x4's to further extend your work surface.

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Easy-grip handle and electric blade brake make repetitive cuts a cinch.

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Veneers And Inlays

Continued on from page 12

cuts are made at a right angle to the annular growth rings. The process yields veneers with straight, parallel grain lines and high wood stability. Quartersawn veneers, such as oak, establish a pleasing, consistent look in a design and often can be seen in mission furniture pieces. Sheet sizes match those of standard veneer, with higher prices.

• *Dyed Veneer*

Made from fine-grain, flat-cut hardwoods, dyed veneer features solid, rich colors penetrating through 1/28"-thick sheets. Colors include black, red, orange, green, blue, and yellow. Dimensions are in random widths (between 6" and 10"), and lengths up to 3'. Priced around $2.75 per square foot, woodworkers rely on dyed black veneers to serve as an ebony look-alike; other dyed veneers help create striking accents and surfaces.

• *Other veneers*

Because of interest among builders, architects, and cabinetmakers, manufacturers developed still other veneer types with special advantages. These, in general, reduce application time and labor costs while covering larger areas and solving such tricky tasks as veneering curved surfaces.

One such type is *paperback* or *flexible* veneer. The easiest to work with, this veneer costs two to three times more than standard veneer. Sold in 18"- to 48"-wide rolls 8' long, paperback veneer consists of a 1/64" layer of smooth, factory-sanded veneer (such as walnut) applied to a 5- or 10-mil paper backing. It can be cut with scissors, though sanding through the thin veneer presents a problem. For this reason, paperback serves better as attractive covering for large tables, cabinet sides, and the like.

One variety of flexible veneer—*peel-and-stick* or *pressure-sensitive*—has an adhesive backing that sticks to a substrate's surface when pressed or ironed in place. Available only in a variety of woods, this veneer requires a clean surface during application; otherwise, failure may result.

Rotary-cut veneer takes shape when logs spin on a large lathe while a sharp horizontal knife peels off long, thin layers of wood. The layers are cut and dried, and later go into the making of plywoods. The final look features repetitive cathedral patterns.

• *Decorative inlays*

Inlays come in two types, inlay *bandings* and inlay *faces*. The former begins as solid wood laminations made up of two or more contrasting woods. Strips are cut from the laminations, then sanded to 1/28" thick. The resulting multicolored strips, measuring 1/16" to 1½" wide, let you spice up projects with pleasing accents and borders. Strips are sold in 3' lengths and priced by the running foot. The wider and more complex, the higher the price.

Inlay faces, by contrast, consist of marquetry pieces, pictures, or designs made from various veneers. Here, you may find images of shells, flowers, and sunbursts—to name a few. Applied as an inlay or overlay (glued onto a wood surface), inlay faces are available for prices ranging from $3 to $50 each. More elaborate faces look great on box tops.

Written by Jim Harrold
Technical Consultant: Sal Marino
Photographs: John Kane; Hetherington Photography

Buying Guide

Veneer catalogs.

Constantine's, 2050 Eastchester Road, Bronx, NY 10461, or call 800/223-8087.

Wood Shed, 1807 Elmwood Avenue, Buffalo, NY 14207-2492, or call 716/876-4252.

Woodworkers Source, 5402 S. 40th Street, Phoenix, AZ 85040, or call 800/423-2450.

"Compared to the other machines in the test, the Delta produced the cleanest surface and the least amount of snipe. The other planers in the test also gave us excellent surface finishing, but the Delta stood out as just a bit better."

Woodworker's Journal, January/February 1998

"...quick-change knives that we found easy and accurate to install. We found that with the quick-change systems we aligned the knives within .001." And, we could install both knives in about five minutes." "Editors' Choice Top Tool™"

Better Homes & Gardens® Wood,® November 1996

"The Delta got great marks for quality of cut and portability, and for its innovative cutterhead assembly lock." "Editors' Choice"

American Woodworker,™ December 1996

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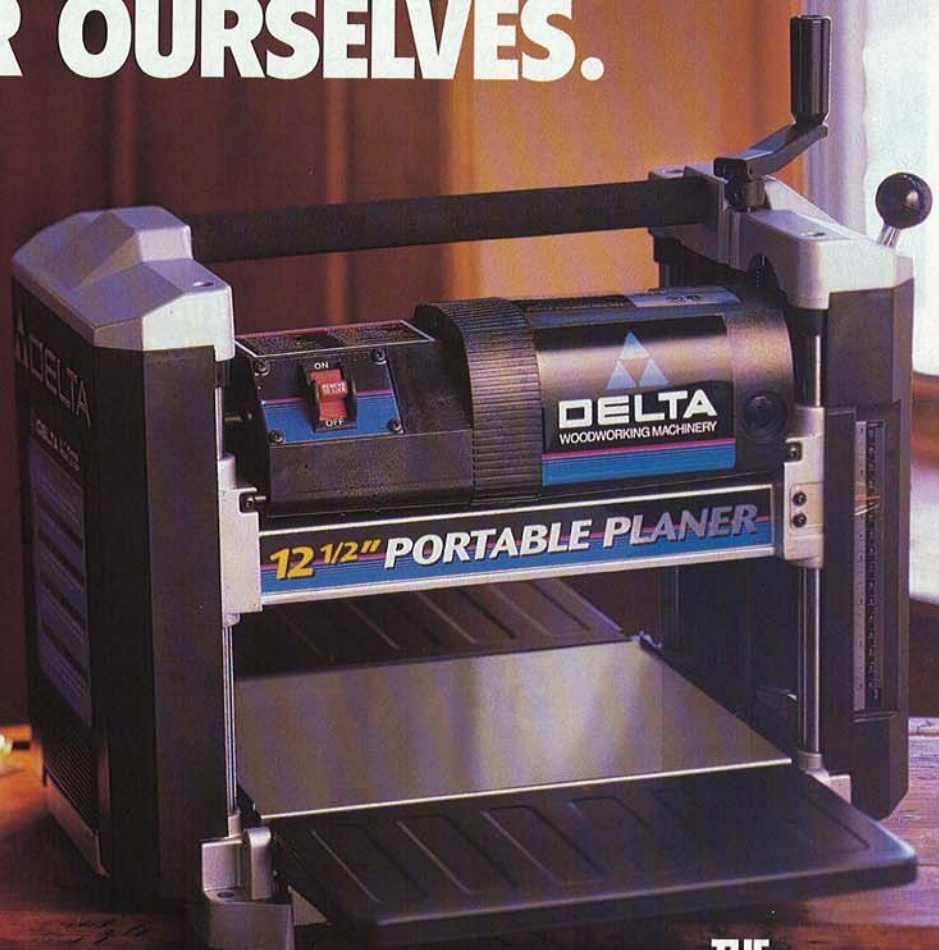
All of which leaves us with very little to say except this: If our planer fails to perform up to your expectations within 30 days of purchase, you can return it for a full refund. That's our Superior Performance Guarantee. And now, for a limited time, we'll even throw in an extra set of knives – a $30 value. Call toll free for the name of your nearest Delta dealer. Delta International Machinery Corp., 800-438-2486. In Canada, 519-836-2840.



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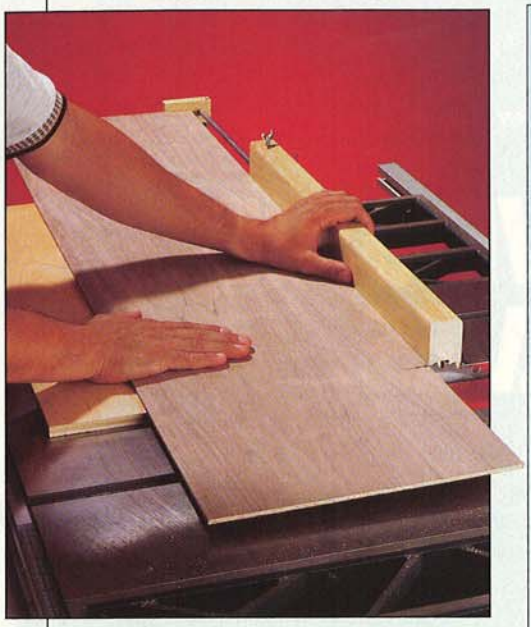
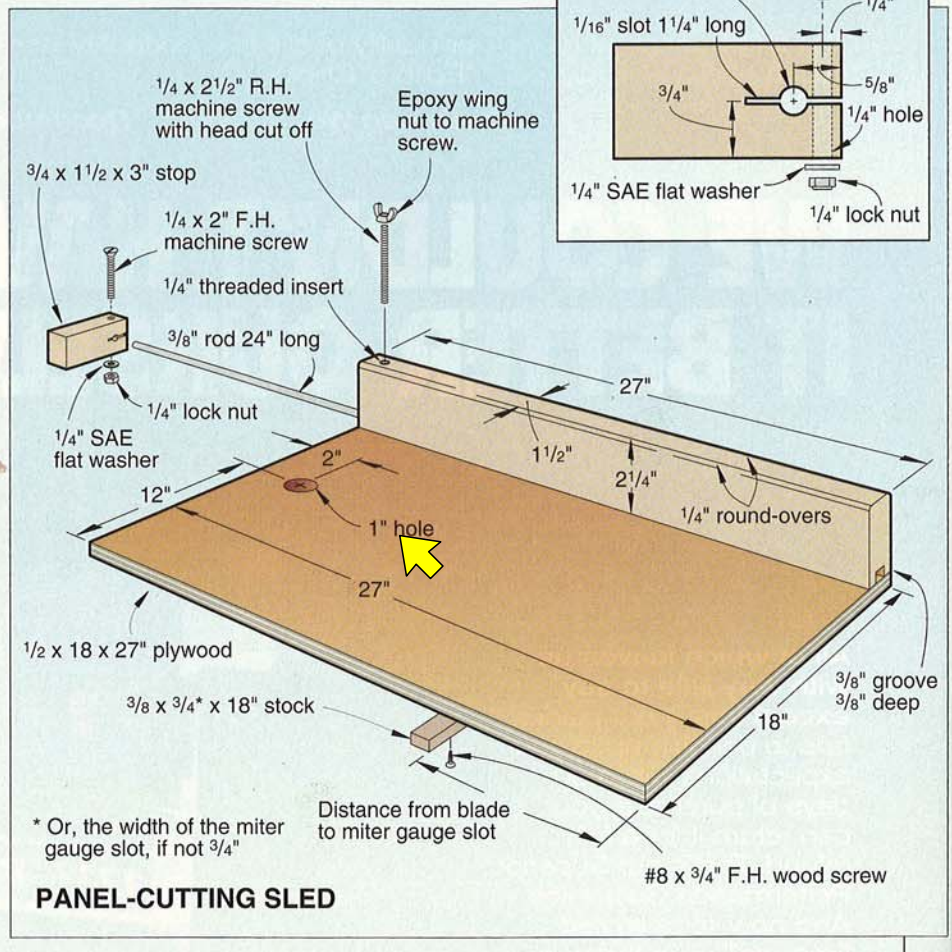
Split a hair and make it square with our

Panel-Cutting Sled





PANEL-CUTTING SLED

When you use our panel cutting sled, you'll never wonder if the corner you just cut is square. For hair-splitting accuracy, the beefy fence is fixed at 90° to the blade and shows exactly where your saw blade will cut. And, the fence-leading design holds wider workpieces more solidly and keeps your work closer than fence-trailing jigs.

Build the jig according to the drawing at *right*. We made ours from birch-veneer plywood with a solid poplar fence, but you could use any ½" plywood or medium-density fiberboard and a straight scrap of 2×4. Cut both pieces ⅛" longer than shown; you'll trim them to their exact length after you build the jig.

Note: A well-tuned tablesaw is essential to complete the assembly. Your saw blade must be perfectly parallel to the miter slot. See the October 1996 issue of WOOD® *magazine for information on tuning up your tablesaw.*

Before attaching the miter-slot bar, ensure the corner formed by the fence and the right edge of the sled is square. Make a mark 3" from the corner along one edge, and 4" along the perpendicular edge. Measure diagonally between the two marks. If the diagonal measures exactly 5", your corner is square. If it's more than 5", the angle is greater than 90°; less than 5", and it's less than 90°.

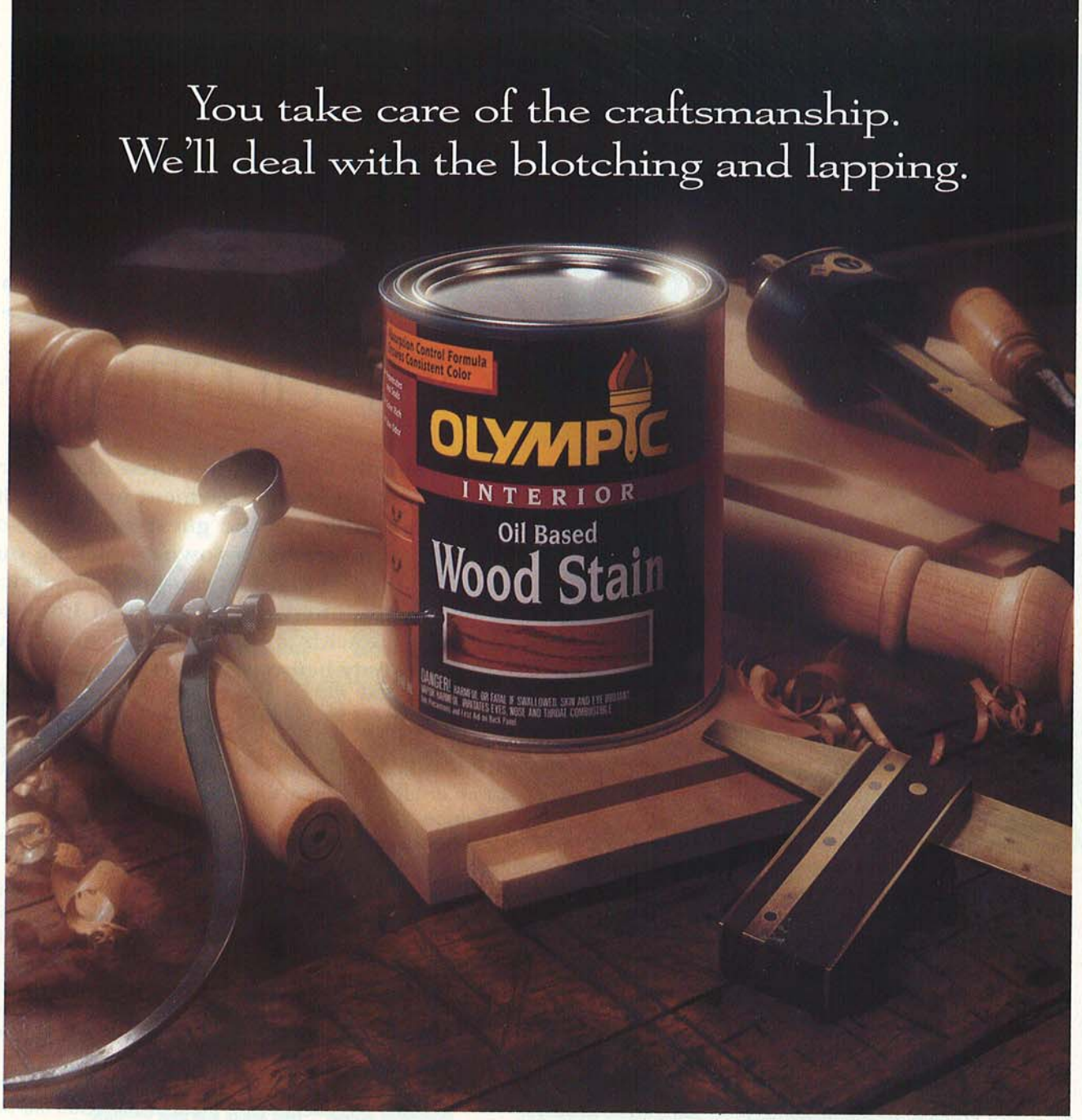
Next, measure the distance between your tablesaw's blade and miter slot and add ⅛". Using that measurement and a combination square, scribe a line on the bottom of the sled, measuring from the saw blade edge. Attach the miter-slot bar along the scribed line.

With the sled's guide bar in your tablesaw's miter-gauge slot, crank the saw blade up to full height. Run the sled through the blade, slicing off the extra ⅛" from both the base and the fence.

You can now cut with confidence by aligning the cut line on your workpiece with the edge of the fence. For repetitive cuts less than 27", clamp a stop block to the fence. When cutting pieces up to 48", lock in the sled's built-in stop block.

Project design: Chuck Hedlund
Photograph: Baldwin Photography
Illustration: Roxanne LeMoine

You take care of the craftsmanship. We'll deal with the blotching and lapping.



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Develop An Eye For Furniture

Are you simply looking for a chest of drawers to stick down in the basement or a cute little lamp table for the guest room? If so, buying old furniture boils down to picking out something you like that you can put into service as is or with minor work. But if you hope to acquire a piece with antique or collector value, you need to study before you start your search.

A keen eye helps you spot the best furniture bargains

"How would a person know," we recently asked Dennis Tesdell, an antique-furniture appraiser and consultant, "whether a piece of furniture is old and valuable, or just old?"

"There's simply no substitute for a good eye to help you separate treasure from trash in old furniture," Dennis answered. "The more you know and the more you train yourself to look for the clues to value, the better your chances of someday finding a valuable piece for a very reasonable price," he added. "The best thing to do if you are serious about going to auctions, flea markets, shops, garage sales, or even sifting through your grandmother's attic for treasures, is to prepare," Dennis told us. Here's how he suggests you start your studies.

Stores and books are good places to look before you buy

You can do a lot of research by visiting shops and galleries that sell antique or collectible furniture. (Antique furniture usually is defined as being at least 100 years old.) Go to museums and antique shows, too. If possible, pick places that specialize in the furniture of the age and kind you're interested in collecting.

If you're not quite sure what style you like (or you know what you like, but don't know what it's called), check your local bookstore or library for books about old furniture. (In a future article we'll look at books and magazines you can turn to.)

In the galleries and shops, look closely at the furniture on display. Ask the dealer or museum staff about things you don't understand regarding style, construction methods, wood species, and signs of wear or repair. This hands-on study will help you become a furniture detective, one able to sleuth out bargains (and perhaps sense frauds).

Some things you should learn are:

- Dates when the specific style of furniture you want to collect was made, and who were well-known makers.
- Construction techniques used in furniture at that time.
- Primary and secondary woods commonly used then. Primary wood is the wood you see when viewing a piece from the front; secondary woods are those in the backs of cases and the inside structure.
- Finishes ordinarily applied then.

And remember, just because something looks exactly like a photo in a book, it may not be of the same vintage or from the same maker. It could be a contemporary copy or even a later reproduction. (Originals are called *period pieces* because they date from the original time period.)

Quality, condition, and rarity are the keys to old-furniture value

Keep these three key factors in mind whenever you check out old furniture, whether it's 50 or 250 years old.

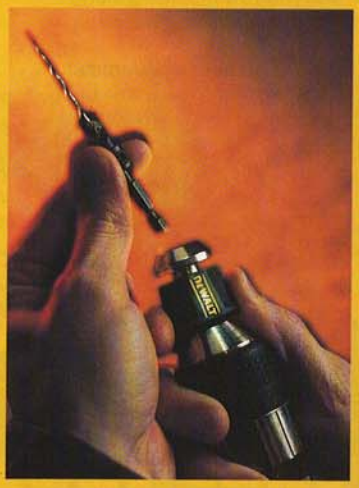
- *Quality.* Good joinery, fancy carving, inlay work, nicely turned parts, and a pleasing and balanced shape usually indicate good or better quality and higher value.
- *Condition.* The more original, the better. If a piece is 200 years old but beat-up and in poor condition or if its old finish has been stripped off, it has little value to most collectors and dealers. Even so, a finely made piece in poor condition is generally worth more than poorly made furniture in fine condition.
- *Rarity.* From your reading and visiting shops, you may recognize that a piece is of a rare size, style, or wood for its kind. If so, it potentially will be worth more.

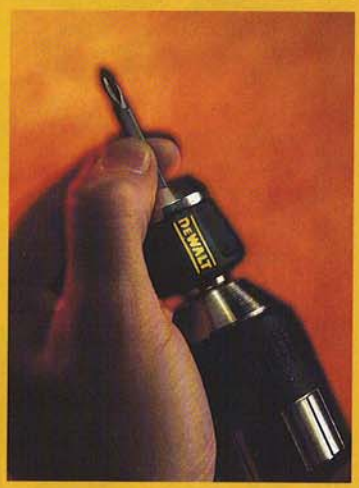
Dennis R. Tesdell of West Des Moines, Iowa, an associate member of the International Society of Appraisers, has 25 years of experience in evaluating old furniture.

Photograph: Hetherington Photography

RAPID LOAD.™

RAPID CHANGE.





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WORKSHOP PUZZLER

Find your way through this forest of wood words

Across

2 With a good one, you can lay on a smooth coat of polyurethane varnish.

3 Drive in a screw more easily and with less chance of splitting by drilling this first.

6 What kind of clamp is this?

7 Gluing to this grain or driving fasteners into it usually results in a weak joint.

8 For bent wooden parts, this popular hardwood, genus *Fraxinus*, is a good choice.

10 You'll find this piece of paper helpful when cutting out curves or shaped parts.

11 A round wooden pin often used for locating or reinforcing a joint.

12 Sheet material comprising laminated veneers.

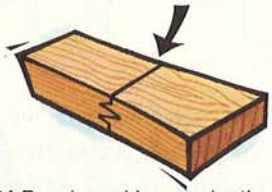
15 A narrow moulding along the top of wainscoting.

16 This sometimes-aromatic softwood stands up well to weather.

18 A striking grain pattern.

19 After you wipe off excess wax, you do this to bring up the shine.

20 What do you call this joint?



21 Bevel, marking, or depth would go with this word.

22 This thick stain penetrates less than liquids, which can reduce splotching.

Down

1 This depression allows a flathead screw to lie flush with or below the surface.

2 Portable or stationary, this type of sander is usually a better choice for aggressively removing material rather than finish-sanding.

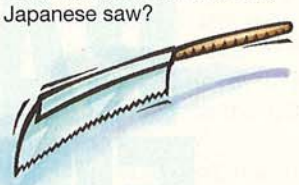
4 The art of creating a picture or design with veneers.

5 What lathe part is this?

9 Your tablesaw's blade mounts on this part.

12 The Pullman Company once made extensive use of this brilliant red wood, also known as vermillion, as trim in railroad cars.

13 What is the name for this Japanese saw?



14 This tool's sure to be a hit when you have nailing to do.

17 Black veining characterizes this dark brown, coarsely textured hardwood that comes from Africa.

20 This fixture clamps to a tool table to help guide, position, or stabilize workpieces.

ANSWERS:

ACROSS:
2. BRUSH 10. PATTERN 18. FIGURE
3. PILOT HOLE 11. DOWEL 19. BUFF
6. HANDSCREW 12. PLYWOOD 20. FINGER
7. END 15. CAP 21. GAUGE
8. ASH 16. CEDAR 22. GEL

DOWN:
1. COUNTERSINK 12. PADAUK
2. BELT 13. DOZUKI
4. MARQUETRY 14. HAMMER
5. HEADSTOCK 17. WENGE
9. ARBOR 20. FENCE

EXTENDED

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JJ-6CSX
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JSL-10TS SHOPLINE™ Tablesaw
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JDP-17MF
Drill Press
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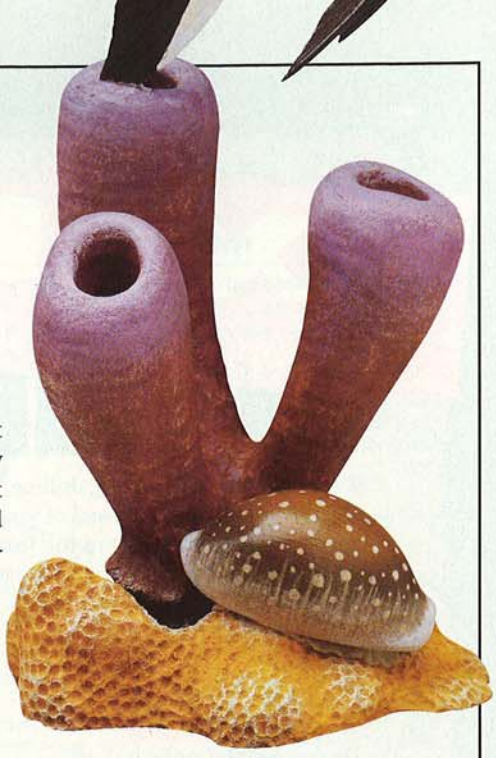
Create a Coral Reef For Your Fish

See fish-carving article on page 50.



Carve a chunk of coral reef

Transfer the Reef Base Top View outline to a piece of carving stock that measures 1½×3¼×4". Bandsaw the base. Cut three pieces of stock 1⅜×1⅜×3" for the sponges.

Begin modelling the base, representing star coral, by rounding and scalloping the top edge to resemble the shape shown. Then, with a ball cutter, carve a channel to form the sponge base where shown. Shape the coral nodes to resemble those in the photograph *below*. Texture the coral by touching a small ball cutter to the surface to create slight depressions.

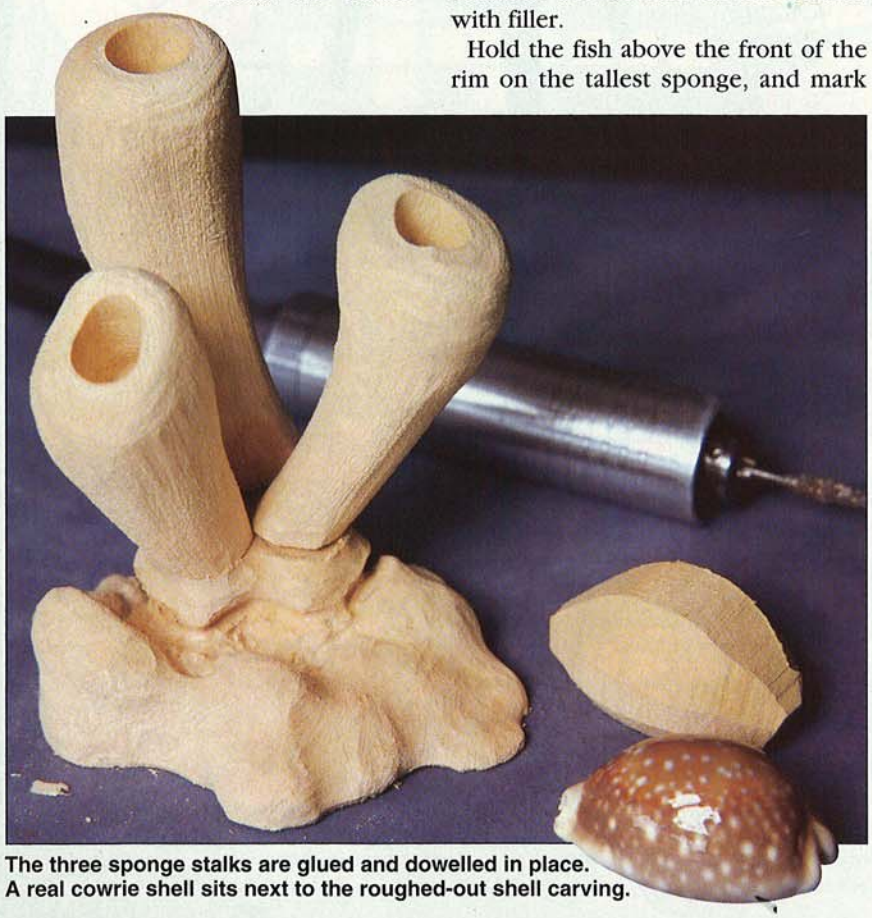
Referring to the photos, rough shape the sponges. Each tapers from about 1⅜" diameter at the top to about ⅝" diameter at the bottom. But none is perfectly round. Make the tallest one about 2¾" tall, another about 2¼" tall, and the third about 1⅞". Bore a ½" roughly round hole about 1" deep into the large end of each.

As you round the sponges, form barely perceptible circumferential grooves around them. Sand the carvings with an open-weave drywall sanding sheet to achieve the texture.

Attach the sponges to the sponge base where shown. Bob dowels the sponges to the base using 6d finishing nails with the heads snipped off. After positioning the sponges, glue them to the base, fill the gaps, and contour the bottom of the cluster with filler.

Hold the fish above the front of the rim on the tallest sponge, and mark where the metal tab on the fish meets the sponge. Cut a slot in the sponge for the tab, and test-fit the fish. Bend the tab as necessary to place the fish vertically. Do not cement the fish to the base yet.

Add a shell to the base, if you like. Bob carved a cowrie shell (shown in front of the roughed-out shell carving *below left*). Buy any kind of shell at a crafts store or aquarium shop to put on the carving or to use as a carving and painting pattern. (Carving patterns for Bob's cowrie are in the *WOOD PATTERNS*® insert.)



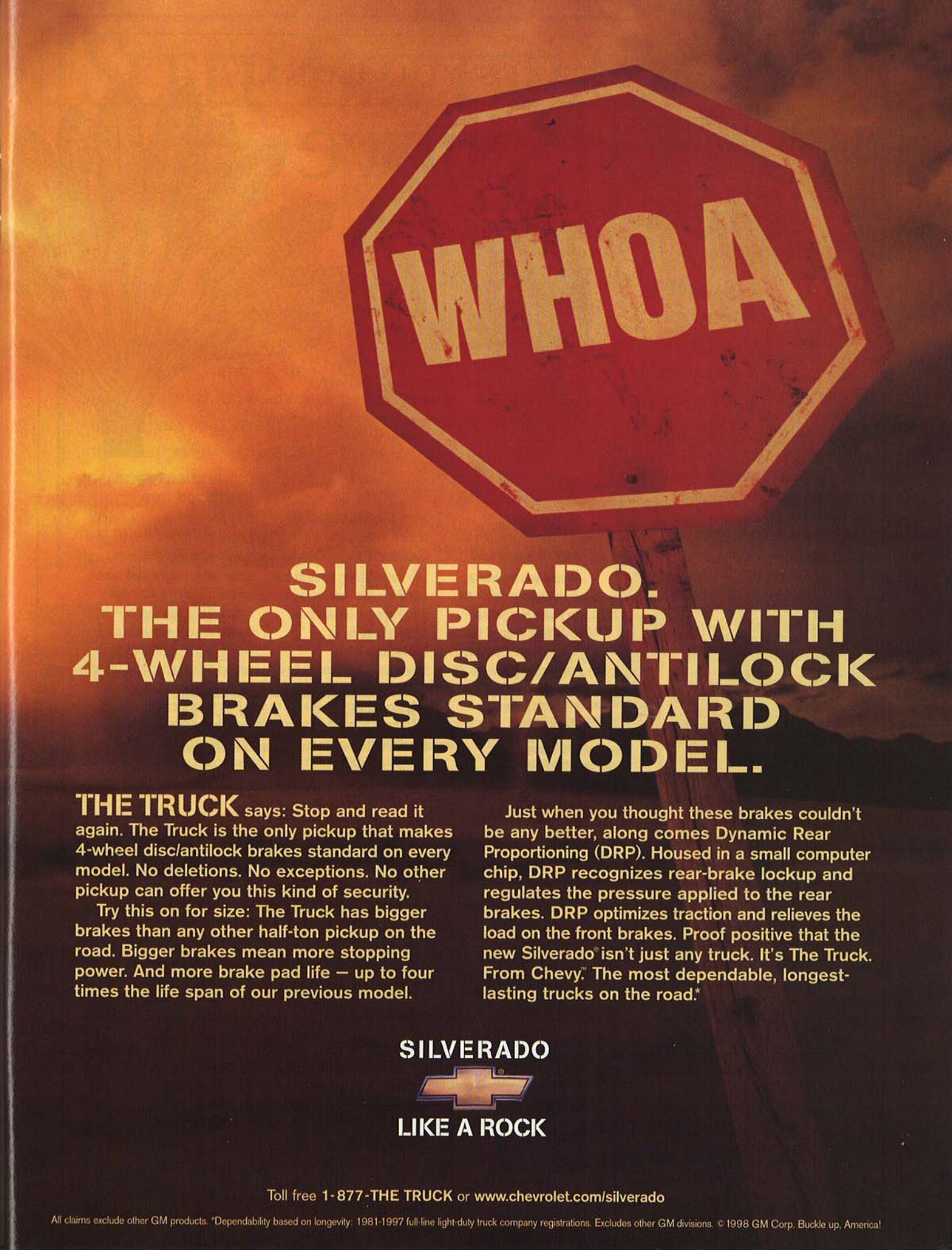
The three sponge stalks are glued and dowelled in place. A real cowrie shell sits next to the roughed-out shell carving.

Color the coral reef, then mount the fish for display

Gesso the sponges, but not the star coral portion of the base. Mix some white into dioxazine purple for the sponge color. Add a tiny amount of burnt umber to darken the lower portions of the sponges.

Paint the coral with yellow ocher and a touch of burnt umber. Drybrush some areas with white to achieve the effect shown in the photo *above*. Paint the channel around the sponge base black. For the cowrie base color, mix yellow ocher into burnt umber.

Finally, mix a bit of epoxy filler and press it into the slot in the tall sponge. Insert the tab on the fish into the slot, removing any filler squeeze-out. Allow the filler to cure, then touch up the paint on the sponge.



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TREES YOU WON'T Believe

EVEN RIPLEY WOULD GET A KICK OUT OF THESE FOREST FACTS

Get a drink from the traveler's tree

There's a tree that grows on the island of Madagascar called the traveler's tree. This member of the banana family is so named because of the water stored at the base of each long leaf stalk. Thirsty travelers tap the leaves, which yield up to a pint each.

Amazing...

A tree that grows almost as fast as a weed

Would you believe a tree that can grow 40' in just a few years? One speciman of the South American flowering potato tree—on the island of Trinidad—actually grew to a height of 30', with a spread to match, in only two years.

The Methuselah of trees lives in California

The oldest living trees in the world are high-elevation, wind-twisted bristlecone pines that grow in California's White Mountains. Specimens have been found with annual rings indicating an age of 5,000 years, a span that parallels the history of human civilization.

America's biggest hardwood tree

Only one hardwood tree ranks among the nation's 10 biggest individual trees. ("Biggest" combines girth, height, and crown spread.) That's a 129'-tall sycamore in Jeromesville, Ohio. It joins a giant sequoia, a redwood, two western red cedars, a pair of Sitka spruces, a Douglas fir, a baldcypress, a sugar pine, a Port Orford cedar, and a Monterey cypress on a list of the grandest in each species.

...but true!

Everything you need, from a single tree

Native to East Africa, the baobab may be the most completely useful tree in the world. It has a massive trunk that's often hollow, and people sometimes live in it. Native Africans use its leaves, bark, wood, roots, and fruits for food, fuel, paper, thread, cloth, and medicine.

A giant among giants

Although never as large in girth as the giant sequoia of the Sierra Nevada Mountains, California's coast redwood does grow taller. The largest standing—in Prairie Creek Redwoods State Park—towers 313' with a diameter of 22'. The record giant sequoia has a height of only 275', but its diameter is nearly 33'. You'll find this mammoth tree, nicknamed General Sherman, growing in Sequoia National Park.

No taper toward the top

The trunks of most trees grow thinner as they rise in height. That of the New Zealand kauri does not. In fact, some kauri trees actually gain in girth at the point where the branches begin to spread. And kauri aren't small trees. The largest living today measures 15' in diameter, with the first branch appearing 100' from the ground, making lumber producers smile.

Illustrations: Brian Jensen

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If you toss and turn at night searching for a comfortable position. If you wake up with morning aches and pains. Here's great news!

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uncomfortable pressure points... and helping to support your back and spine properly.

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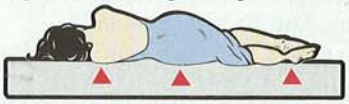
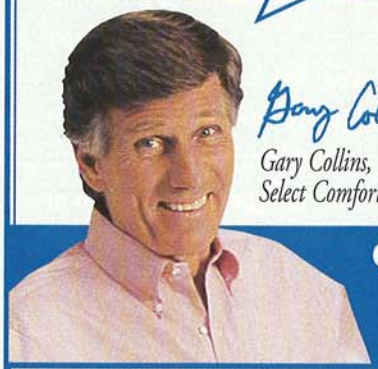


Metal Coil Mattresses *can create uncomfortable pressure points and provide uneven support over time.*

Many Waterbeds *can cause a "hammock" effect as the water beneath you displaces resulting in a bending of the spine.*

"For complete details on this Proven & Better Way to Sleep... Call for your FREE Catalog and Video!...TODAY!



Gary Collins
Gary Collins, Select Comfort Owner

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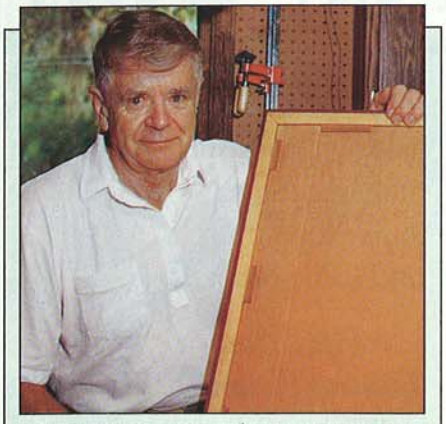

Dom Fetterer shows off a frame that uses his prize-winning method of securing pictures in frames.

When I first spoke with Dom Fetterer, hurricane Bonnie was about to introduce herself to his North Carolina home. Despite that, Dom was unfettered. "We've weathered (hurricanes) Fran, Bertha, and Hugo. We'll see what Bonnie brings." A lot of wind and a few days later, I learned that Dom had suffered only a few downed tree limbs.

One thing is certain: Though Bonnie rocked the house, Dom's pictures stayed on his walls, thanks in part to the way he made the frames. His simple framing addition is this issue's Top Shop Tip, at *right*.

Have you solved a woodworking problem in your shop? Share your solution with us. If we publish it, we'll issue you a check for $40. The best tip in each issue is named our Top Shop Tip and the sender wins a tool prize worth at least $250. Send us your best tips, a photo or drawing of the tip, and your daytime phone number to:

Tips From Your Shop (and Ours)
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Because we try to publish only original shop tips, please send your ideas only to *WOOD* magazine. And please note that we cannot return submissions. Thanks!

Dave Campbell

GENERAL-INTEREST EDITOR

These extra-groovy frames are "pointless"

Your article about picture frames (June 1998) inspired me to share my method for keeping pictures snug in their frames. I use it on the custom frames I make and never have to fumble with glazing points or brads.

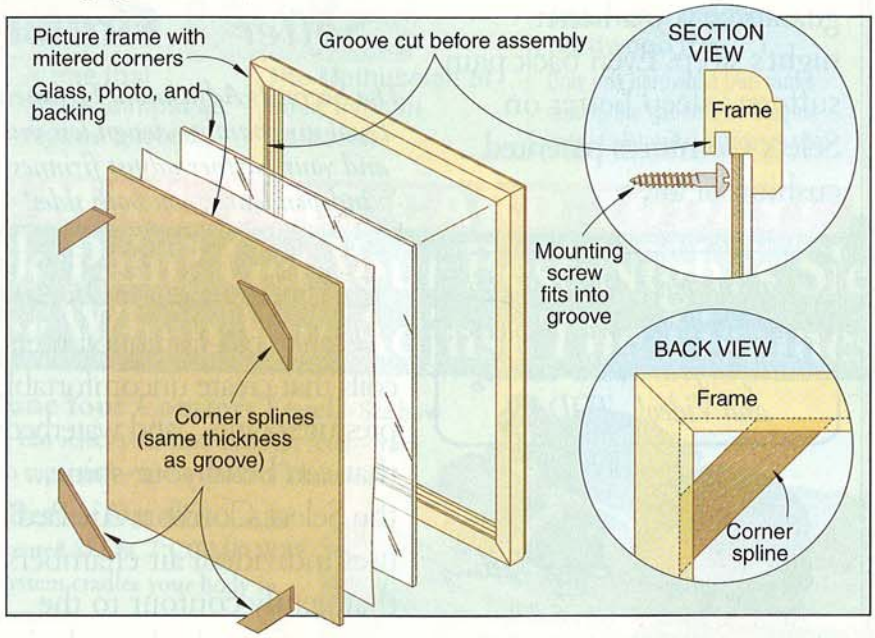
After cutting the frame pieces to length, I rout the usual rabbet in the back of the frame to accept the art. I then cut a 3/16"-deep groove in the rabbet, as shown in the Section View, *below,* and assemble the frame. After placing the glass, picture, and backing, I insert friction-fitting wooden splines in the grooves. (For small frames, I place a spline across each corner.) The splines come out easily to change pictures.

For sending this issue's Top Shop Tip, Dom Fetterer will receive this Jet JML-1014 mini-lathe. Happy turning, Dom!

TOP SHOP TIP

The groove has another nice feature: To hang the framed picture, I simply drive a couple of screws into the wall, level with each other and slightly protruding. The heads of the screws fit right in the groove, and keep the top corners from sagging.

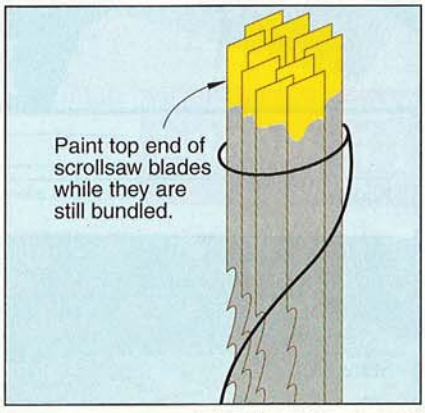
—Dom Fetterer, Southport, N.C.



Paint on scrollsaw blades shows which way is up

The older I get, the harder it is to see the teeth of my scrollsaw blades to make sure they go into the saw right-side up. So when I buy a new bundle of blades, I figure out which end is up, and dip that end of the blades in a bottle of brightly colored model paint. The blade always goes into the scrollsaw with the painted end up. For quick identification, I dip blades of different types or tooth-counts in different colors.

— Henry Worrells, North Fort Myers, Fla.



Continued on page 28

CAN YOUR TABLE SAW PASS THE NICKEL TEST?

Try it. See if a nickel will stand on your saw while it's running.*

Odds are it can't.

But on a RIDGID TS2424, the nickel won't budge. Because the vibration-absorbing cast iron construction, heavy-gauge steel stand and precision machined pulley/poly-v-belt drive system are engineered to deliver unmatched, smooth-running performance.

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*Make sure guard is properly installed.

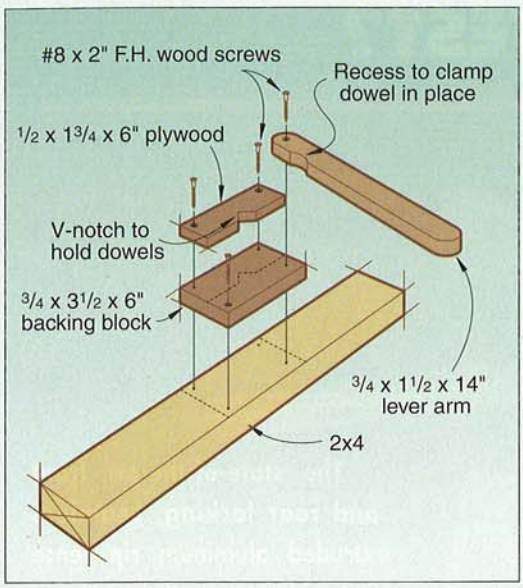
Continued from page 26

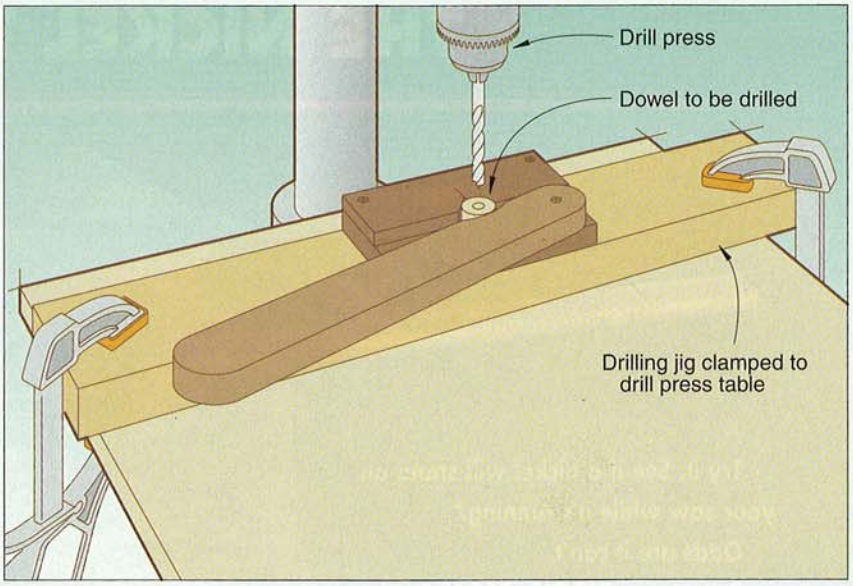
Lever holds dowels tight during drilling

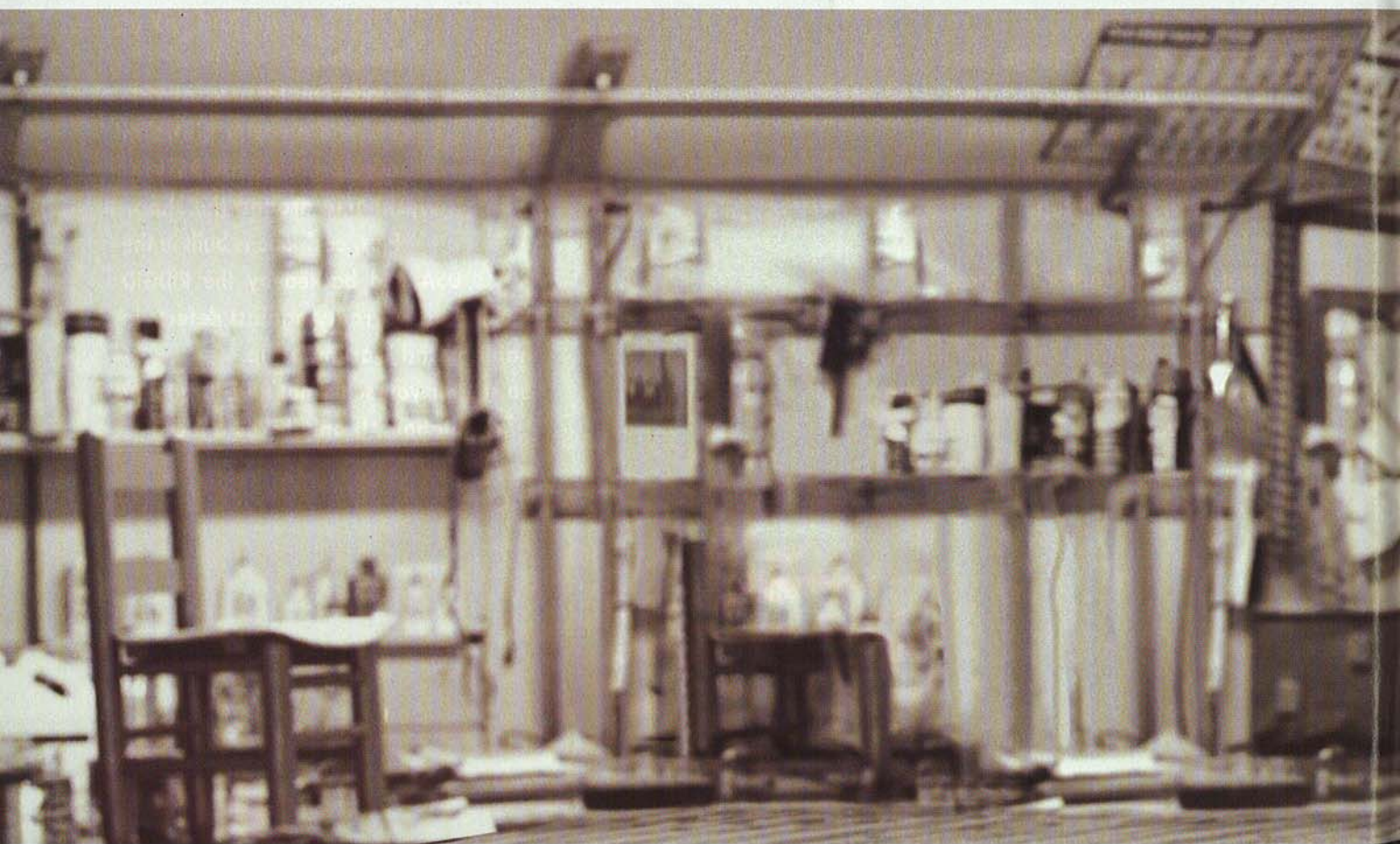
I built a game scorekeeper that uses short lengths of dowel that slide on a rod, similar to an abacus. I cut the dowel sections first, then figured out a way to drill the holes in the thin "slices." My solution was to build the jig, shown *below*.

The lever holds the sliced dowels firmly against the V-notch during the drilling process. The same setup with a wider V-notch works great for drilling axle holes in toy wheels.

—Don Lefler, Middletown, Calif.


#8 x 2" F.H. wood screws
Recess to clamp dowel in place
1/2 x 1 3/4 x 6" plywood
V-notch to hold dowels
3/4 x 3 1/2 x 6" backing block
3/4 x 1 1/2 x 14" lever arm
2x4



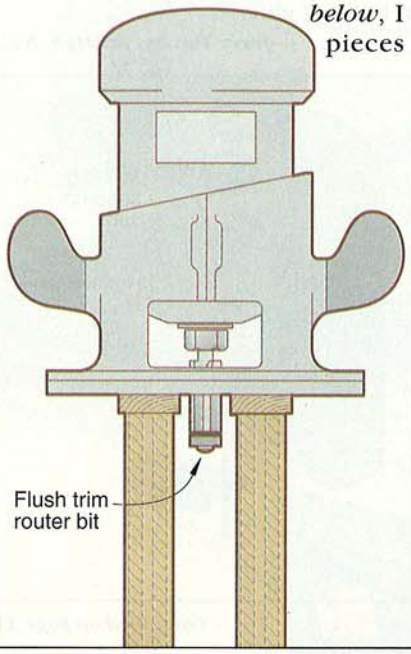


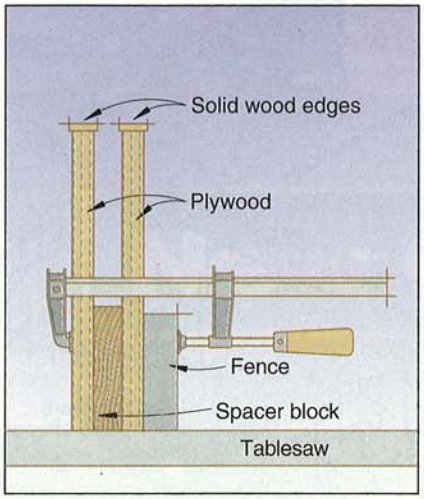
Coast to Coast. SERVISTAR. True Value.

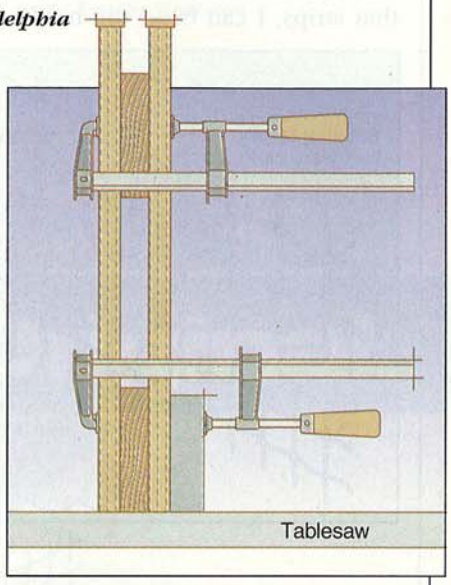
Simple setup stabilizes workpieces when trimming plywood edging

After I've added solid wood edges to plywood and need to trim them, I use a router with a flush trim bit. To keep the router from wobbling on the ¾" edge or having to make and store some kind of jig to balance the router, I simply do two or more at a time. As illustrated *below*, I clamp the plywood pieces onto my tablesaw fence with a spacer piece of scrapwood between each pair. This way, the router sits on at least 2¼" of edge. To stabilize wider pieces, I clamp an additional spacer near the top. If the plywood is too large to clamp securely to the fence, I clamp it directly to the table and work sideways.

—Karl Siefert, Philadelphia







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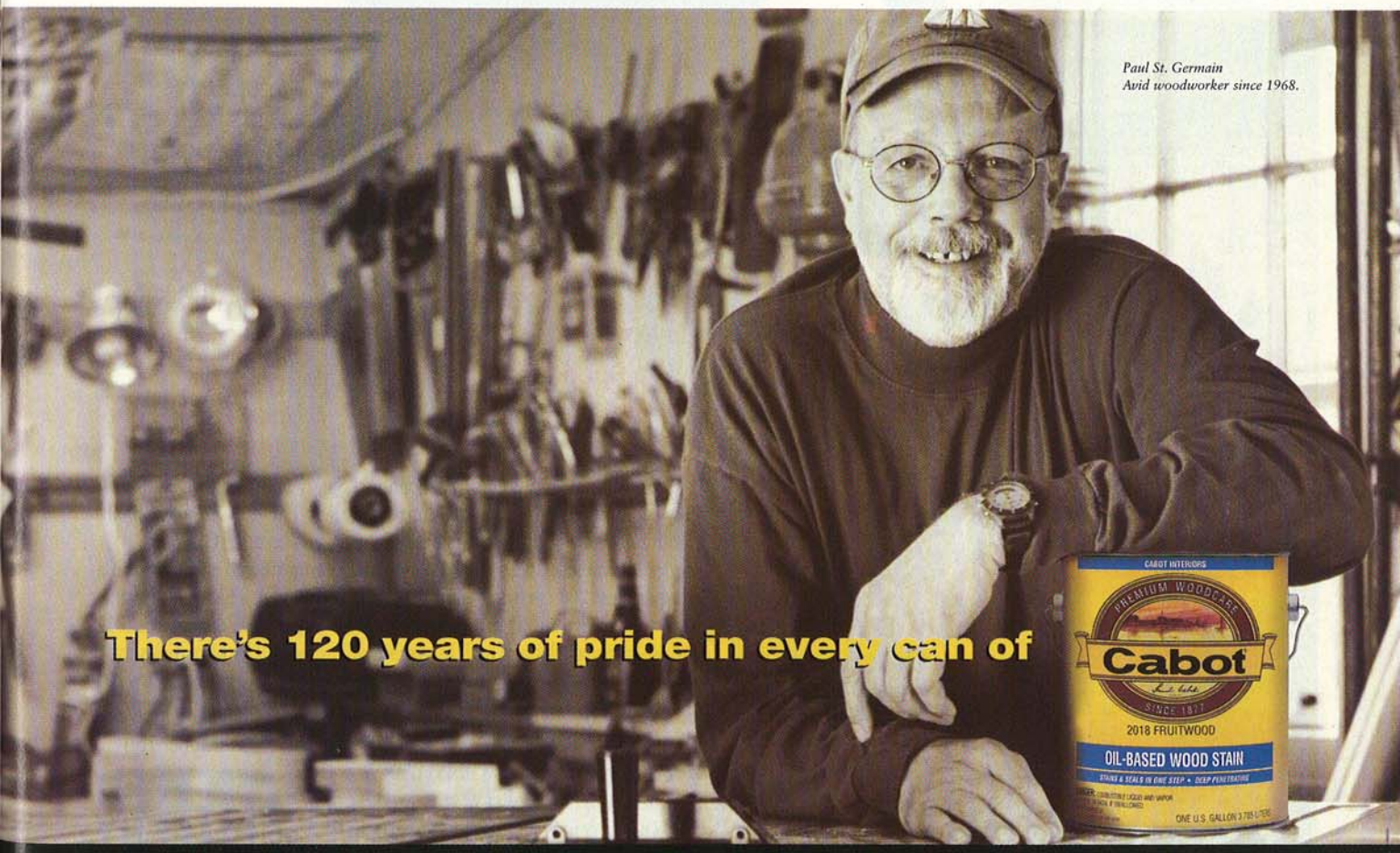


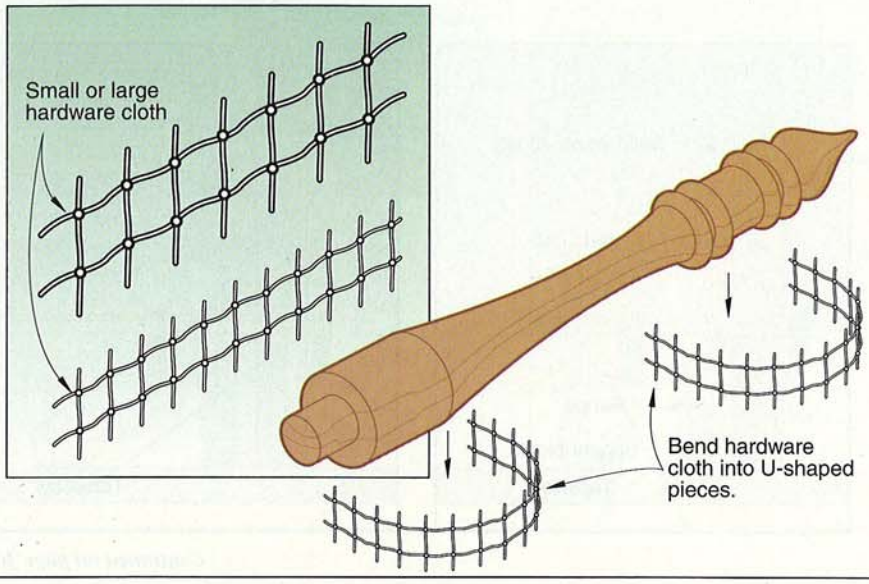
To locate the retailer nearest you, call 1-800-US-STAIN ext. 345.

Continued from page 29

Use hardware cloth for miniature drying rack

Finishing small turnings and other pieces for wooden toys was always a hassle because I could never find a good place to set them to let the finish dry. I solved the problem with strips of hardware cloth. By cutting thin strips, I can bend the hardware cloth to the shape I need to support even irregularly shaped pieces. The cut points of the mesh support the pieces with minimal contact. I use larger mesh for bigger projects and smaller mesh for little pieces.

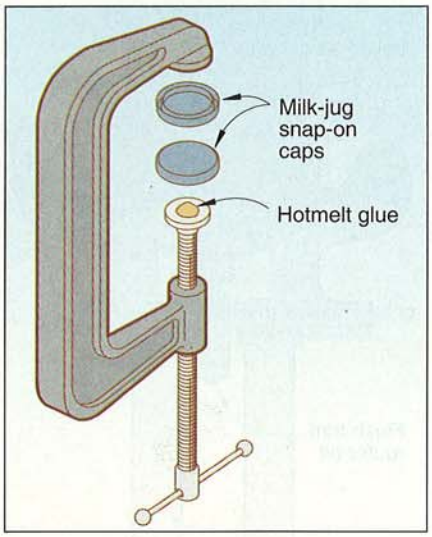
—J.M. Evans, Waycross, Ga.



No-mar milk caps

To keep C-clamps from marring project surfaces, I reuse the plastic caps found on milkjugs as pads. The caps, which normally aren't recycled with the jugs, are held in place with a dab of hotmelt glue.

—Jerry Pasley, Raleigh, N.C.



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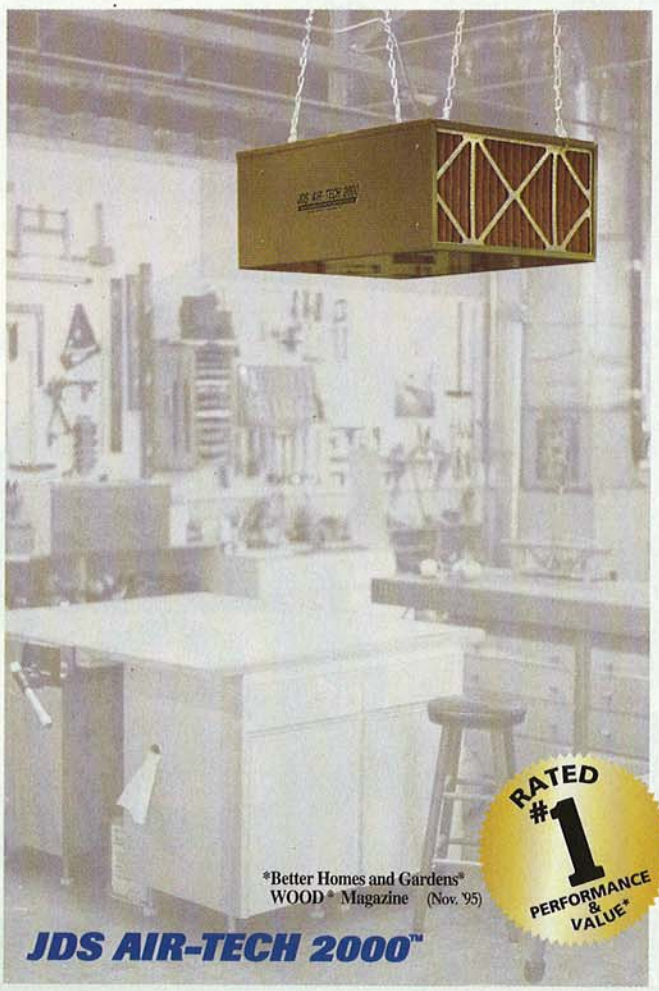

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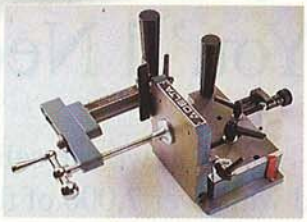

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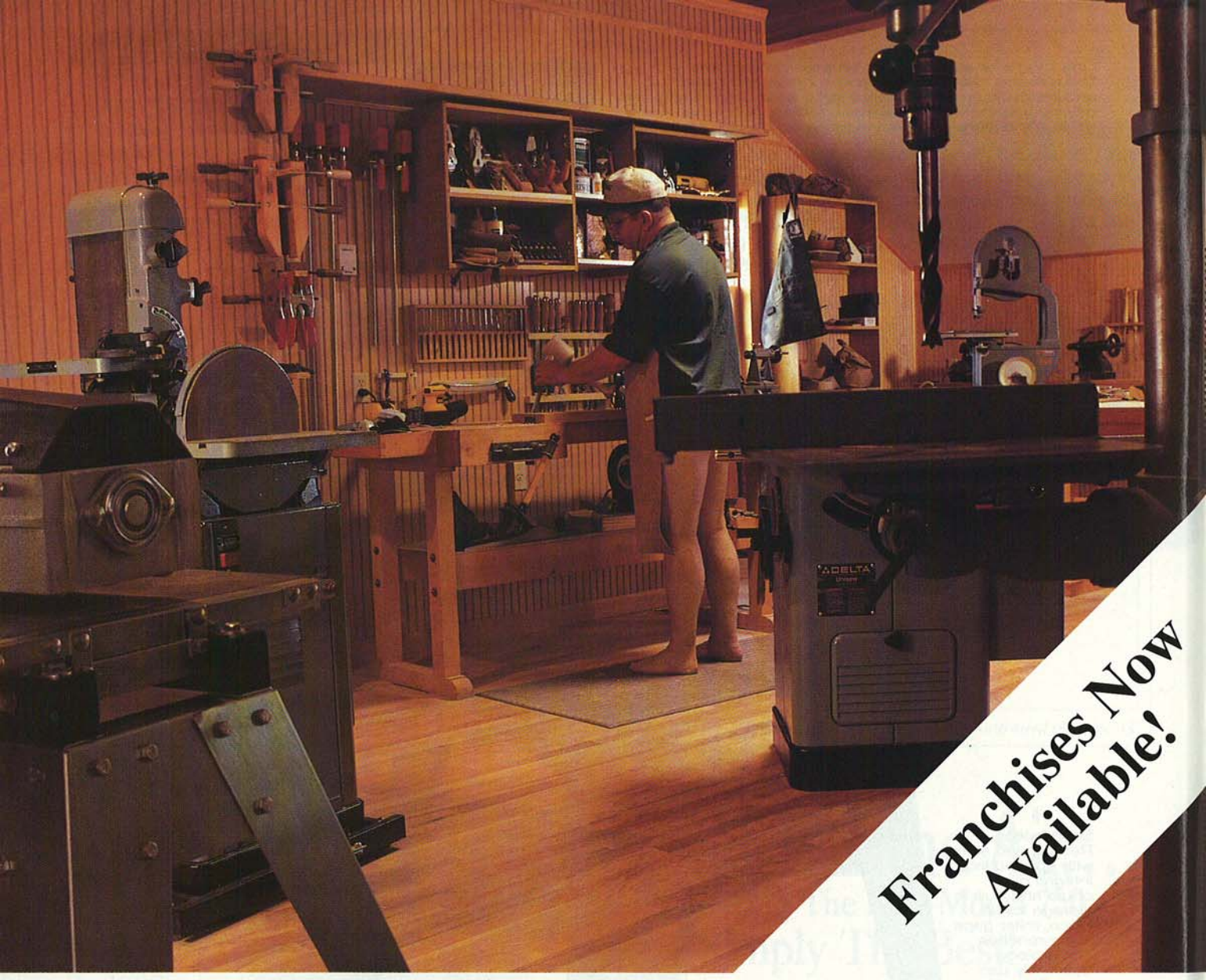

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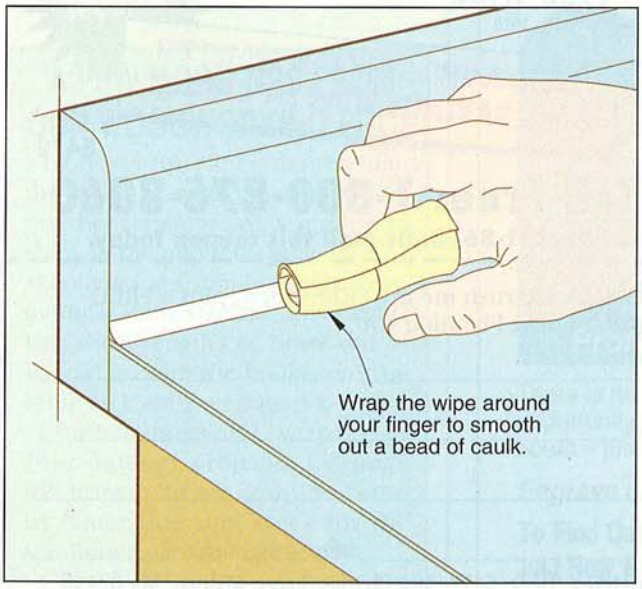
TIPS FROM YOUR SHOP (AND OURS)

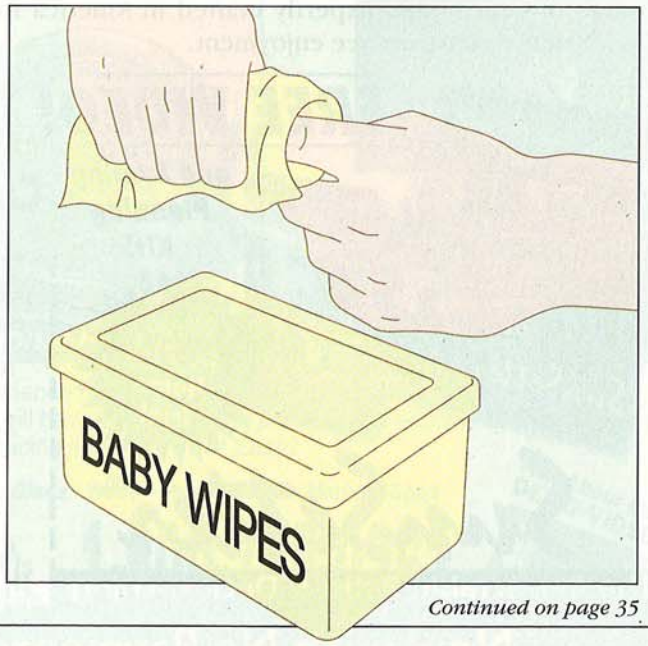
Continued from page 30

With a wipe, you can make caulk beads as smooth a silk

When smoothing a bead of latex caulk at my daughter's house, I was looking for some place to wipe the inevitable glob of goo that collected on my fingertip. She handed me a box of those pre-moistened towelettes from the diaper bag. Besides cleaning my hands, I discovered that a towelette wrapped around my finger left an exceptionally smooth bead of caulk. Now, I always keep a box of baby wipes handy in my shop for waterless cleanup of hands and tools.

— Frank Grieco, Simi Valley, Calif.





Continued on page 35

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TIPS FROM YOUR SHOP (AND OURS)

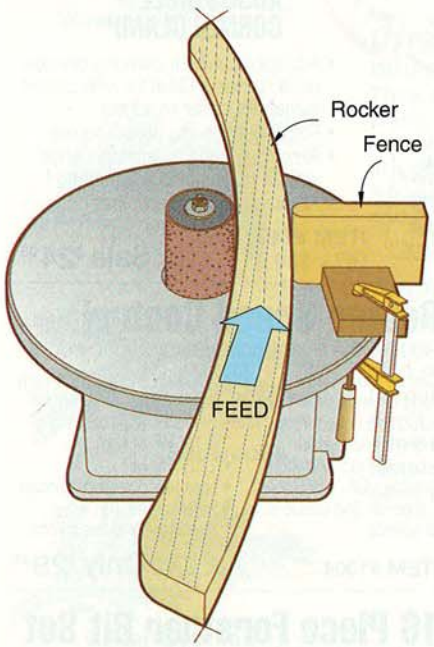
Continued from page 33

Sand uniform curves on your spindle sander

When making a pair of rockers recently, I wanted to ensure uniform width. But I found it difficult to accurately sand them freehand on my oscillating spindle sander.

The solution lay in the bull-nosed fence I use to saw curves on my bandsaw. I clamped the fence to my sander's tabletop as shown *below*, with the desired width of my rocker between the abrasive spindle and the fence's nose. After carefully shaping the outside curve, I sanded the inside radius of each rocker by feeding it between the drum and fence.

— Allen Bakke, Forest Lake, Minn.



A FEW MORE TIPS FROM OUR WOODWORKING PROS

- To bevel-rip panels larger than the reach of your tablesaw blade, use the technique we describe and show in the photo on *page 46*.
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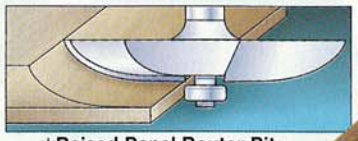

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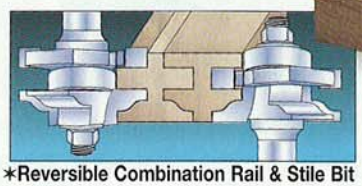

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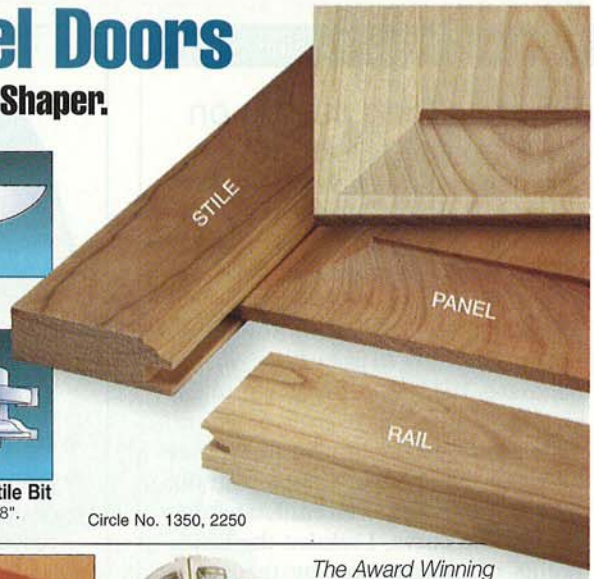

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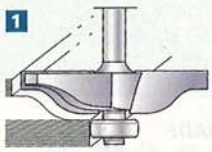

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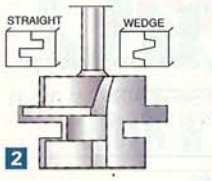

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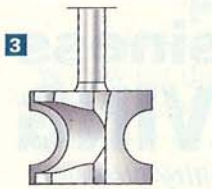

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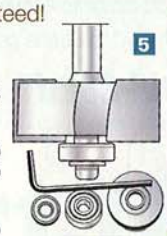

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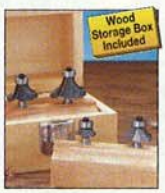

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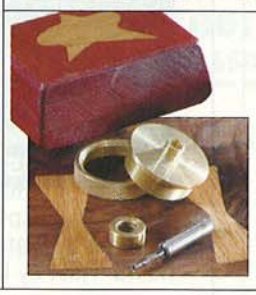

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How Trees Are Named

In the entire world there are about 20,000 kinds of trees, ranging from grand stands of old timber trees, like the Douglas fir, to small ornamentals, such as the flowering crab. And someone had to name them.

Tree groups, a family thing

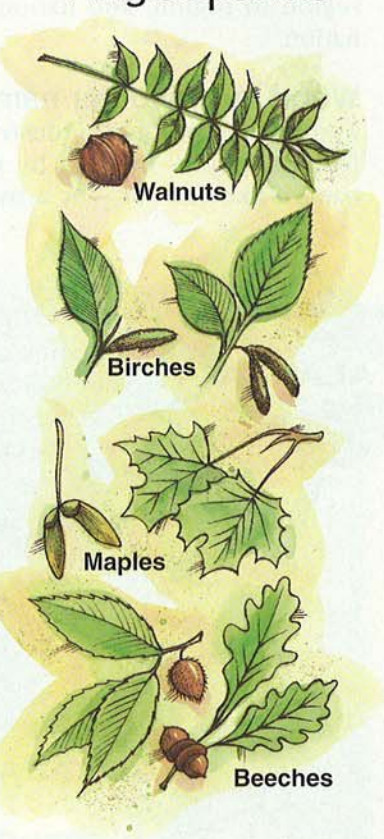
Botanists place all trees that reproduce the same way and have similar features, such as flowers, into separate families. They then gather the families under two broad classifications.

***Gymnosperms*—these trees generally don't bud and flower.**

They produce naked seeds, usually shielded by a cone. Many gymnosperms are evergreen, needleleaf trees. Native North American trees included in this classification are all the members of the pine family—the yews, redwoods, cycads (sago palm, fern palm), cedars, junipers, and cypresses.

***Angiosperms*—these trees flower and bear seeds in a fruit or nut.**

Palms, palmettos, and yuccas belong to a special subdivision of angiosperms called *monocotyledons*, which have irregularly distributed woody parts in their stems, and thus don't produce annual rings. Into the other division of angiosperms, the *dicotyledons*, fall all of the other tree families, most of which are broadleaf trees, such as the oaks, maples, ashes, and so on.

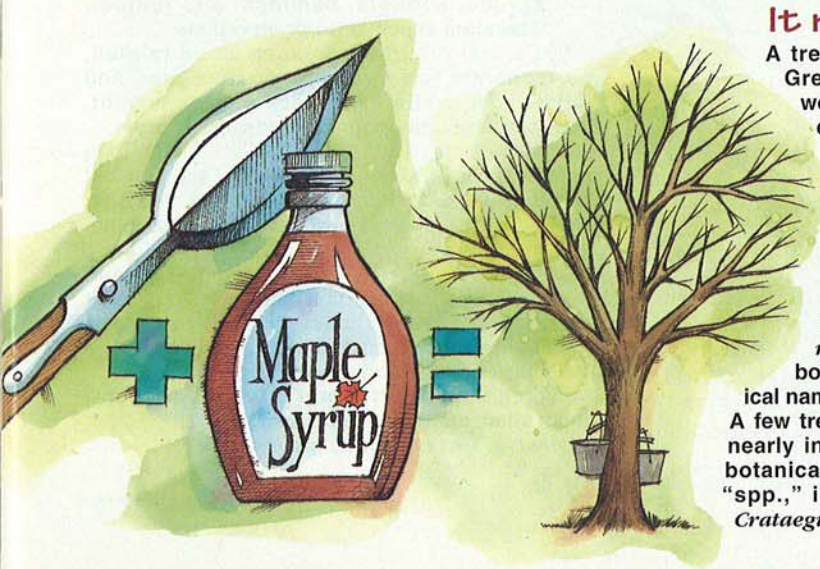


It may be Greek to you

A tree's two-part botanical name, usually in Latin or from Greek, remains the same for that tree everywhere in the world. That's due to an international code that strictly governs the nomenclature of plants.

The first word in a tree's botanical name refers to its genus, as in *Acer* (maple). The word means hard or sharp because the Romans used maple for pike poles and lances. The second name, the specific epithet, or species, more specifically describes it. In our example, it's *saccharum* (sweet), a word describing the sugar maple's sap. So sugar maple scientifically becomes *Acer saccharum*. One of its cousins, red maple, would be *Acer rubrum* (for red). Sometimes, the name (or initials) of the botanist who named the plant takes a third spot in the botanical name. With sugar maple, it's *Acer saccharum* Marsh.

A few tree species actually represent groups, with the members nearly indistinguishable from one another. In these cases, the botanical name includes only the genus and the abbreviation "spp.," indicating several variations, such as the hawthorn, *Crataegus spp*. It has 150 species growing in North America.



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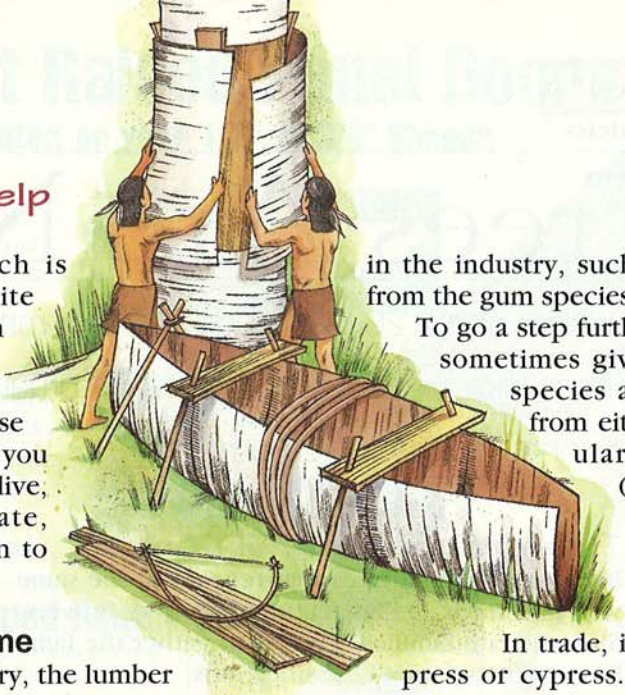

Common names help identify the tree

Maybe to you paper birch is canoe birch or simply white birch. You might call an American sycamore a button-ball tree. All are correct and acceptable because these locally common names help you to identify trees where you live, varying from state to state, region to region, and nation to nation.

Wood by any other name

In the wood products industry, the lumber from a species may go by the tree's common name—like red oak—or a trade name used only in the industry, such as tupelo gum, which isn't from the gum species at all.

To go a step further, the wood veneer industry sometimes gives the product from a tree species a name completely different from either its common name or regular trade name. Baldcypress (*Taxodium distichum*) makes an interesting example. Regionally, it's called gulf cypress, tidewater red cypress, and white cypress. In trade, it's marketed as either baldcypress or cypress. But there's a special cut of cypress crotch wood that veneer manufacturers tag and market as *faux satine*.

Where trees grow have a name, too

Species of trees—whether broadleaf or needleleaf—with similar needs tend to grow together. Differences in temperature, moisture, and soil determine where you will find a tree species. Because these different climatic variables also change with altitude, some northern species extend their range into southern mountains and the southern part of western mountains. To help in classification and identification, botanists and foresters divide North America into what they call forest regions, each with a name.

- ***Northern or subarctic woodland.*** **Bitter cold. Scattered black and white spruce.**
- ***Needleleaf/broadleaf forest.*** **Warm summers and cold winters. Large needleleaf forests of red and white pine, white cedar, and hemlock with areas of beech, sugar maple, white ash, yellow and paper birch, and basswood.**
- ***Mountain needleleaf forests.*** **Wet, windy, and cool with increasing altitude. Stands of ponderosa and lodgepole pine, Douglas fir, spruce, sequoia, hemlock, and juniper. Abundant aspen at lower elevations.**
- ***Central broadleaf forests.*** **Good rainfall, moderate temperatures. Features red and white oak, white ash, black cherry, walnut, sycamore, and other popular hardwood species.**
- ***Southeastern broadleaf/needleleaf forest.*** **Hot, long summers, mild winters. Pitch, loblolly, and longleaf pine; cypress; with red gum, white oak, red oak; yellow poplar; hickories and pecan; and the tupelos.**
- ***Pacific coastal forest.*** **Warm and moist. Grand needleleaf trees like the redwoods and Douglas fir with western red cedar, hemlock, and Sitka spruce. Broadleaf trees include aspen, bigleaf maple, red alder, black cottonwood, and myrtle.**
- ***Subtropical forest.*** **Hot and humid. Mahogany, lignum vitae, mangrove, and palms**
- ***Unforested.*** **Trees in spotty groves.**

Illustrations: Brian Jensen

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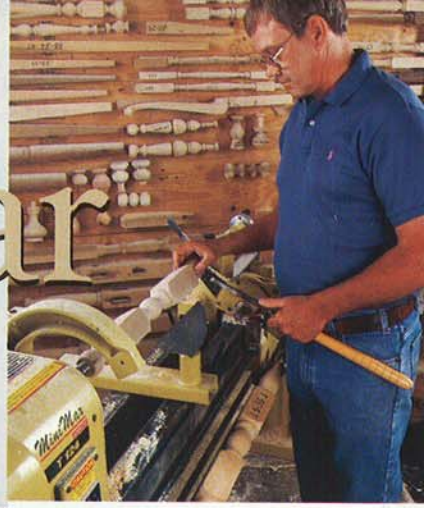
Commemorating Yesteryear



In Virginia, Lee Sawyer captures the well-used look in his period furniture.

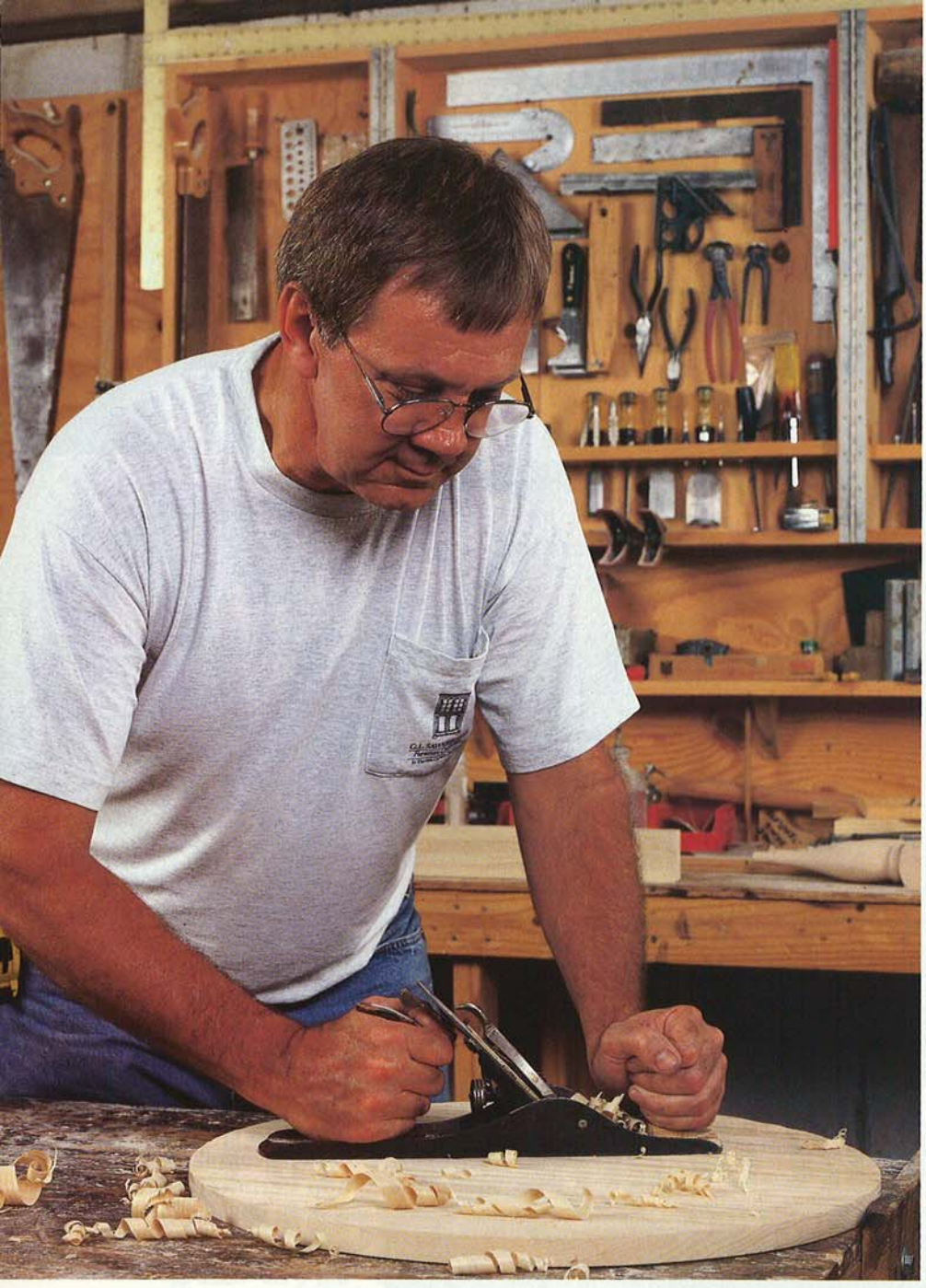
When he talks about his 18th-century reproduction furniture, G.L. (Lee) Sawyer is straightforward. "It's not overly priced, but it's not inexpensive, either. I believe that if you sell a dollar item, you only get a dollar customer," the 50-year-old craftsman says quite matter-of-factly.

The work that comes out of Lee's Norfolk, Virginia, shop definitely doesn't generate dollar customers. At $5,700, his painted William and Mary style highboys—one of his most popular items—look as if they have withstood 200 years of use. He and his finishers diligently strive

Continued

Left: **The William and Mary style highboy to Lee's right is a popular piece in his line of distressed 18th-century reproduction furniture.**

Above: **At the lathe, Lee checks the smoothness of a table leg. The duplicating attachment below the bed perfectly copies the original.**



Above: **This curly maple side table replicates one from the 1800s in the collection of Historic New England, which Lee has been licensed to duplicate and sell.**

Above: **Lee gives a tabletop the wavy look of warp and hard use by making passes with a hand plane fitted with a rounded iron.**

to make the furniture appear aged and well broken-in. From worn, wavy tabletops to crackling paint, he has developed a look that goes beyond antique—sometimes verging on rustic. And his clients love it.

"I was exhibiting at a retail furniture show in Richmond a few years back," Lee relates. "And a woman came up to my booth and just caressed the pieces I had on display. Finally, she said to me, 'These are a little out of my price range. Do you ever have seconds, you know, with dings and dents?' I said, 'Ma'am, we charge extra for those'. "

Pickin' up primitives in the southern hills

Former New York Giants quarterback Phil Simms owns several of Lee's modern antiques, and even commissioned him to build a bathroom vanity and tub surround for his New Jersey home. "His interior designer gave me free rein, saying that price was no object," he fondly recalls.

It wasn't always that way, though. Lee pretty much has arrived in the furnituremaking business out of necessity. Sixteen years ago he was a building contractor with an occupying interest in antiques.

"I started collecting old furniture early on," Lee remembers. "And I really got interested in primitive painted pieces. The term primitive primarily denotes things that were homemade in the back country by a person with some skills, but not a cabinetmaker. They simply needed a piece for their home, so they built it. And most primitive pieces were painted because they were made from mixed woods, like air-dried pine and poplar. They painted them to look uniform."

Just as many antique dealers began, Lee ended up with many more items than he could showcase in his home. So he rented a little storefront and started a weekend antique business.

"I really didn't know what these primitive pieces I had were worth," Lee says, "until I contacted an expert in Illinois. When he found out I had primitives, he wanted pictures of them for an antique guide book. I

Commemorating Yesteryear

Above: **Although it's brand new, this primitive-style side table with its crazed and worn painted top looks as if it has endured more than a century of use.**

agreed—and I'm glad I did—because I got some recognition from that."

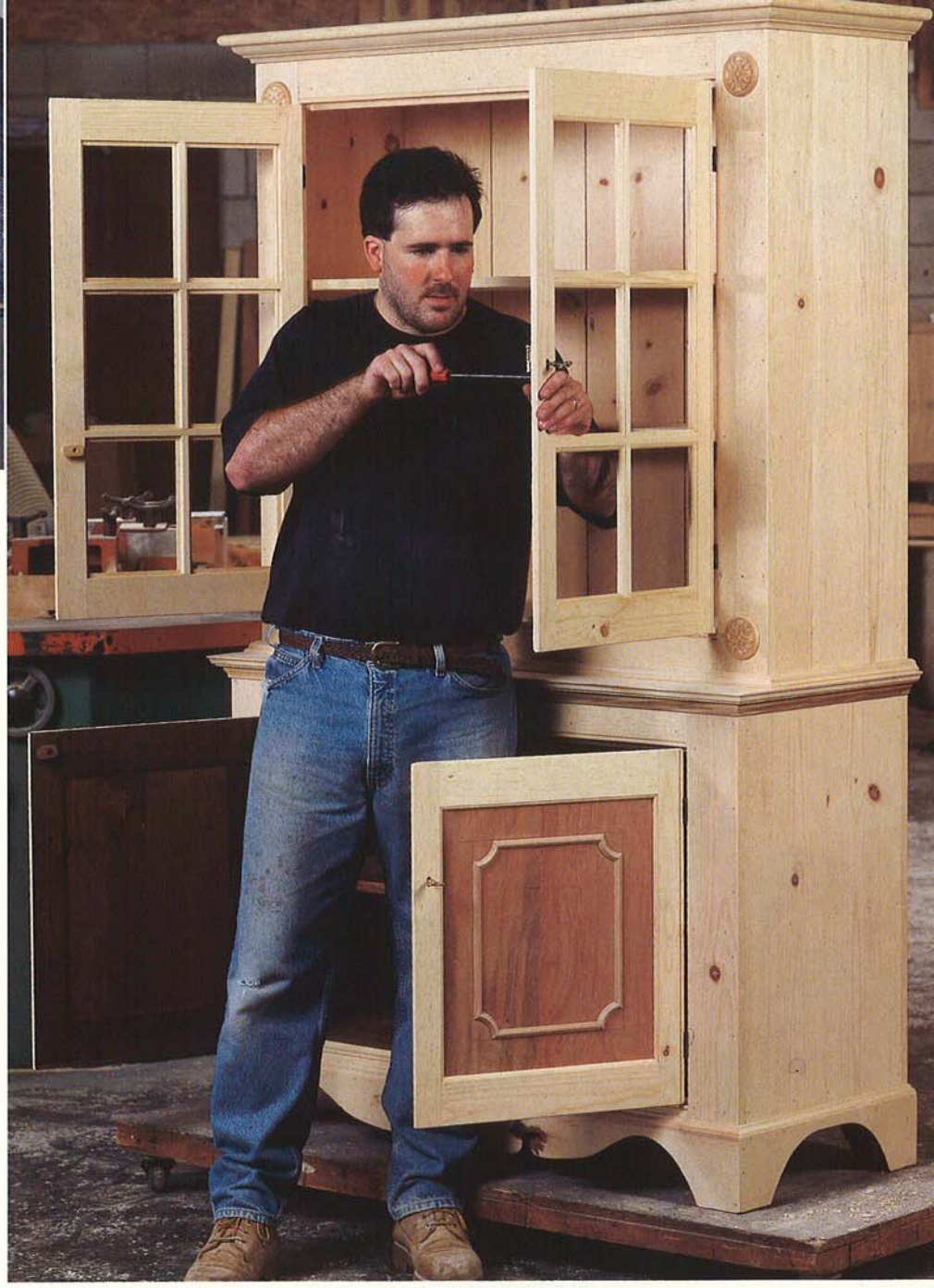
Business started picking up, and collectors started stopping by and asking for specific types of furniture. "Most of the stuff I dealt with dated to around 1850. Some of it was from the late 1700s, and even up to 1900," Lee recalls. "I'd travel through the hills of North Carolina and Virginia to buy pieces. Then, I developed a network of pickers—local people who would go into rural homes and buy pieces directly for people like me. I'd give them up to 50 percent more for an old painted piece, particularly if it was well worn because there was a niche for it."

As with many things, the demand increased for primitive painted pieces, and as it did, they became harder to find and more expensive. "People would pay thousands for a southern hunt board [serving table] or a farm table, and it would be in bad shape," says Lee. "That's when I started dabbling in building them from scratch and painting them to look old. The first piece I ever built for resale was a farm table with a yellow pine top and a painted base. Well, it turned out that I could sell those replicas as fast as I could build them."

Building a niche out of yesteryear

"I dropped contracting about 13 years ago. I had no time for it with the furniture," says Lee. "I enjoyed this so much more, working with my hands and not having to deal with subcontractors not showing up. And unlike furniture, a house is never all yours, even though you start with nothing but a plan. With furniture, you release it to a buyer, but it's not just a job. You take pride in it.

"Today, I sometimes see one of those pieces from the eighties that I made, and compared to what we're making now, it's like night and day to me," he continues. "But I'm surprised that the people won't trade or sell those pieces for anything. You see, I used to sign and date them because I did all the building."



Above: **Steve Greene adds hardware to a hutch cabinet that will have its doors fitted with genuine blown glass. Then, it will get a finish that looks 100 years old.**

When Lee began furnituremaking, he worked in a one-car garage shop. Then, he went to a three-car garage. After that came a 30×60' shop. "At one time I had a 30×200' building with 14 employees," he laughs, "so the signing got dropped."

Lee's big expansion came following his appearance at the High Point Furniture Market, a semi-annual event that draws store owners, interior

Continued

Above: **Finishers Helen Borduex and Susan Dunmire add a dark stain over a yellow one to the curly maple drawers of a chest. They'll wipe most of the dark stain off with naphtha, resulting in accented figure and an aged patina.**

Above: **This simple table and ladderback chair typify the look of primitive painted furniture that Lee used to collect. The table sells for $800; the chair, $300.**

"We did a job on Long Island for a designer who saw me in High Point and got one of my catalogs," Lee says. "I charge $100 for a catalog that's refundable with the first $5,000 order. That keeps them out of the hand of catalog collectors. That designer looked at my catalog for three years before placing an order. Then, he spent somewhere around $25,000 on a wholesale basis for his client, and everything was custom-sized."

Despite the catalog, about 90 percent of Lee's pieces are custom. "Even though we have a catalog, clients only use it as a guide for what they want, which is a leg like this and a door like that from different pieces," he notes.

"Most of our furniture is painted yellow poplar, and some white pine," Lee adds. "Designers come to us for that look. When we do a natural-finish piece, it's usually tiger maple—that's my first choice, then walnut, then cherry. We've never done anything in mahogany, and never oak. I've turned down jobs in oak because it doesn't really go with what we do."

Over the years, the work made in Lee's shop has evolved from primitive painted to include pieces with a New England heritage. In fact, Lee is licensed by Historic New England (the Society for the Protection of New England Antiquities) to reproduce and sell antiques from their collection. In return, he pays the group a royalty. "The difference between New England pieces and southern furniture is that New England pieces usually have turned legs," Lee observes.

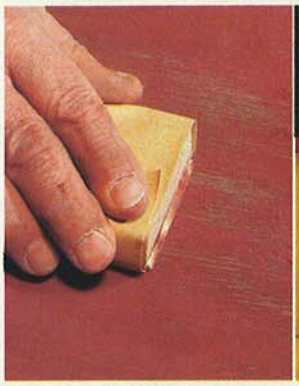
designers, and furnituremakers from across the nation and around the world. It's held each spring and fall in High Point, North Carolina.

"I started doing some antique shows when I had the store, but when I began building the furniture, I started going to some retail furniture shows," he comments. "Then I did all wholesale shows. Finally, in 1990, I got to High Point, which is THE furniture market in the United States, and even for overseas."

That one High Point showing produced sales to buyers in Germany, France, and Italy, as well as in the U.S.

Commemorating Yesteryear

How to Create a Century-Old Finish



To achieve a worn look, Lee sands through the top coat to a "dirty brown" base coat, rather than to new wood.

Blasts from a heat gun skin-over the accent coat of milk paint, but don't cure it. This allows it to later "peel" when sanded.

A build-up of several coats of milk paint, then selective sanding, produces the aged finish that Lee's customers want.

From sour milk comes stubborn paint

The painted furniture that Lee collected, sold, and now builds and sells was and is colored with what has come to be called milk paint. It's made from casein, a protein ingredient of milk that separates into curds when milk sours. Before refrigeration, there was no lack of sour milk.

"At one time, all milk paint was made from whole milk," Lee explains. "They let the casein curds dry, then ground them into powder to mix with linseed oil. The different colors came from plants, berries, nuts, and things like copper scrapings. There's one traditional color—oxblood red—that some people say was created by mixing in real ox blood. That's a myth."

What isn't a myth, though, is milk paint's durability. "There was a time period when people would take an old painted piece and strip it down to the bare wood," he adds. "But they'd occasionally find milk paint under the modern paint. And true old milk paint won't come off with conventional strippers. You have to use something caustic that eventually eats it off. It does take some time."

According to Lee, only one manufacturer makes milk paint today, the Old Fashioned Milk Paint Company (436 Main St., Box 222, Gorton, MA 01450). "All the others you see labeled as milk paint are actually latex. If you read the labels, they'll say 'authentic milk paint colors.' "

The milk paint Lee buys comes in powder form in 6-, 12-, and 48-ounce packages. About 16 colors are available. "When mixed with water, it has a short shelf life," he notes. "Some people put the mixed paint in glass containers, then refrigerate it. It supposedly lasts a few days. But we pretty much mix what we need at the time, then throw the leftover out."

Scuffs, scrapes, and gouges spell distress

"Some furniture that's been made to appear old looks forced," says Lee. "I tell my finishers to put their hands on the piece. Where would someone put their hand to open and shut that door or open that drawer? When you figure it out, distress those places.

"But no matter what we do, it's hard to know what will please a customer," he adds. "What do they picture as old? I've had pieces go out that I thought might be a bit overdone and people just loved them. I've had others that we could have spent more time on, and it's just what they expected. It comes down to developing a feel for each piece. Because of that, I could do ten at a time and each one would be a little bit different."

Lee's finishers apply milk paint, often more than one coat, with foam brushes. "Instead of sanding through the paint down to raw wood to indicate wear, it's better to lay down a brown undercoat," Lee advises. "Then, you can sand through the top coat or coats to the brown [as shown *above left*]. That gives you the dirty patina of worn wood. If you sanded to the raw wood, you'd end up with a bright spot that wouldn't look right. So, you'd have to stain the area, and the stain would get on the paint."

Lee has even taught his finishers how to achieve a chipped-and-peeled effect with milk paint. "If you want the paint to come off in places, you put on one coat of the color you want to show. When it's dry, put on a coat of another color and hit it with a heat gun so that it doesn't completely adhere [as in the photo *above*]. Then, after you apply the top coat—again of another color—and let it dry, you can come back with a little sandpaper and go through it. Because it's soft and all, the second coat slicks right off where you sanded and reveals the first coat."

Worn spots around handles, keyholes, and pulls are created by sanding. Lee duplicates the look of crazed paint by going over an area with the heat gun after the milk paint has thoroughly dried. When he or his finishers are satisfied with a piece, it gets a coat of Briwax (a beeswax and carnauba product) that's tinted a light brown. That adds more age by muting the tone.

"There's a lot of time in the painting and distressing," says Lee. "You can get a chair sprayed with lacquer for $20. Our minimum is $100. Some people think we overdo it a bit, but it's a certain look that we're after, based on my experience with antiques. I know what they should end up looking like."

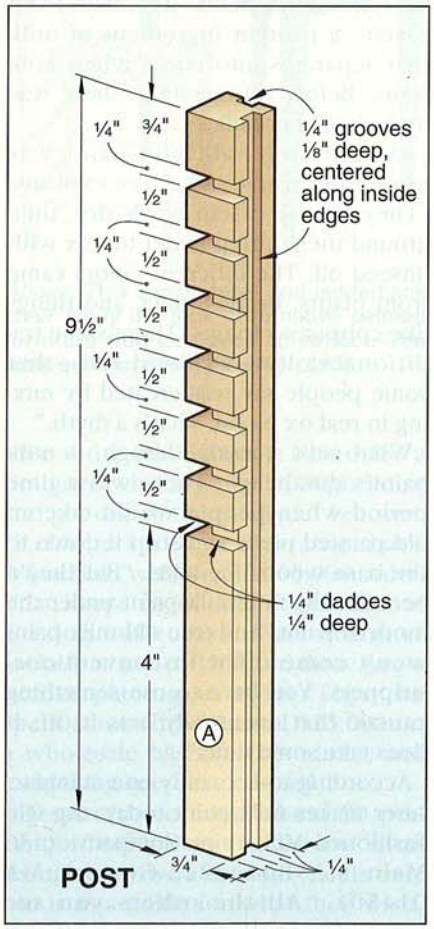
Part of that feel for a piece of furniture begins before the paint goes on. That's when one of Lee's finishers softens any sharp edges with a file to make them worn, then sands them smooth. "We also beat 'em up a little with chains and put in some nicks and gouges with a chisel or a screwdriver," says Lee. "Just enough to indicate use."

Written by Peter J. Stephano Photographs: Steve Uzzell; Marty Baldwin

Low-Voltage, High-Appeal YARD

If you're looking for a way to add a friendly glow to your walkway or garden, step right this way. I specified commonly available low-voltage lighting components to keep costs down, and used Honduran mahogany for lanterns built to last a lifetime. I'm confident you'll appreciate the elegant styling of the lantern housing, which is a combination of mission and contemporary.

Jan Svec
Assistant Design Editor



***Note:** The instructions, Bill of Materials, and Cutting Diagram give the directions and number of pieces needed to build a single lantern. To make additional units, be sure to cut all identical pieces at the same time to ensure uniformity.*

Start with the dadoed corner posts

1 Cut the posts (A) to the size listed in the Bill of Materials. (We used Honduran mahogany, but teak, redwood, or cedar would work also.) Cut a few extra; you'll need them to verify the cuts in the following steps.

2 Cut ¼" grooves ⅛" deep along two adjacent surfaces of each post.

3 To avoid accumulated error when marking and cutting the numerous dadoes, mark all the dado locations on one of the extra corner posts using the Post drawing *above* for reference.

Continued

LIGHTING

Bill of Materials

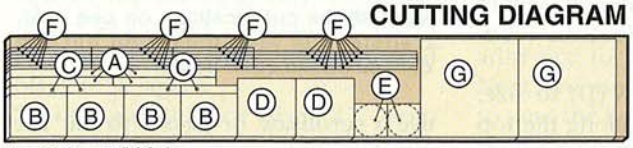
Part	Finished Size T	W	L	Matl.	Qty.
ONE LANTERN					
A posts	¾"	¾"	9½"	C	4
B sides	¾"	4"	5¼"	C	4
C top rails	¾"	¾"	5¼"	C	4
D panels	¾"	5⅜"	5⅜"	C	2
E mounting disc	1½"	3" dia.		LC	1
F louvers	¼"	¾"	7½"	C	28
G* roof	1½"	9"	9"	LC	1
H* reflector	30 gauge	10"	13"	A	1
I lenses	⅛"	4¾"	5¼"	CA	4

*Cut parts marked with an * oversize. Trim to finished size according to the how-to instructions.

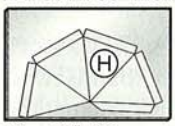
Materials Key: C–choice of mahogany, teak, redwood, or cedar; LC–laminated choice; A–aluminum flashing; CA–clear acrylic.

Supplies: low-voltage transformer (we used Intermatic Malibu; size will depend on wattage of system), 11 watt sealed lamp (we used Intermatic ML11P2, 12V), crimp-on 22-18 gauge female spade-type wire connectors, low-voltage outdoor wire (wire gauge as recommend for length of run), cable connectors (we used Intermatic ML006-2), #8×1" stainless-steel screws, #8×2" stainless-steel screws, 7/16" aluminum tacks, .160"–diameter screening spline, 3" ID plastic pipe, exterior finish.

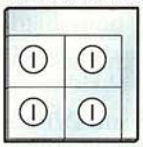
CUTTING DIAGRAM



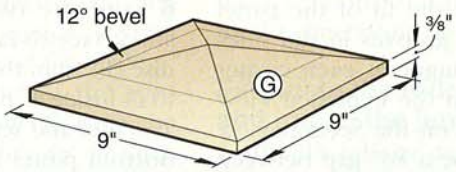
¾ x 9¼ x 60" Mohogany

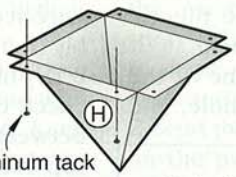


10 x 13" 30 gauge aluminum flashing



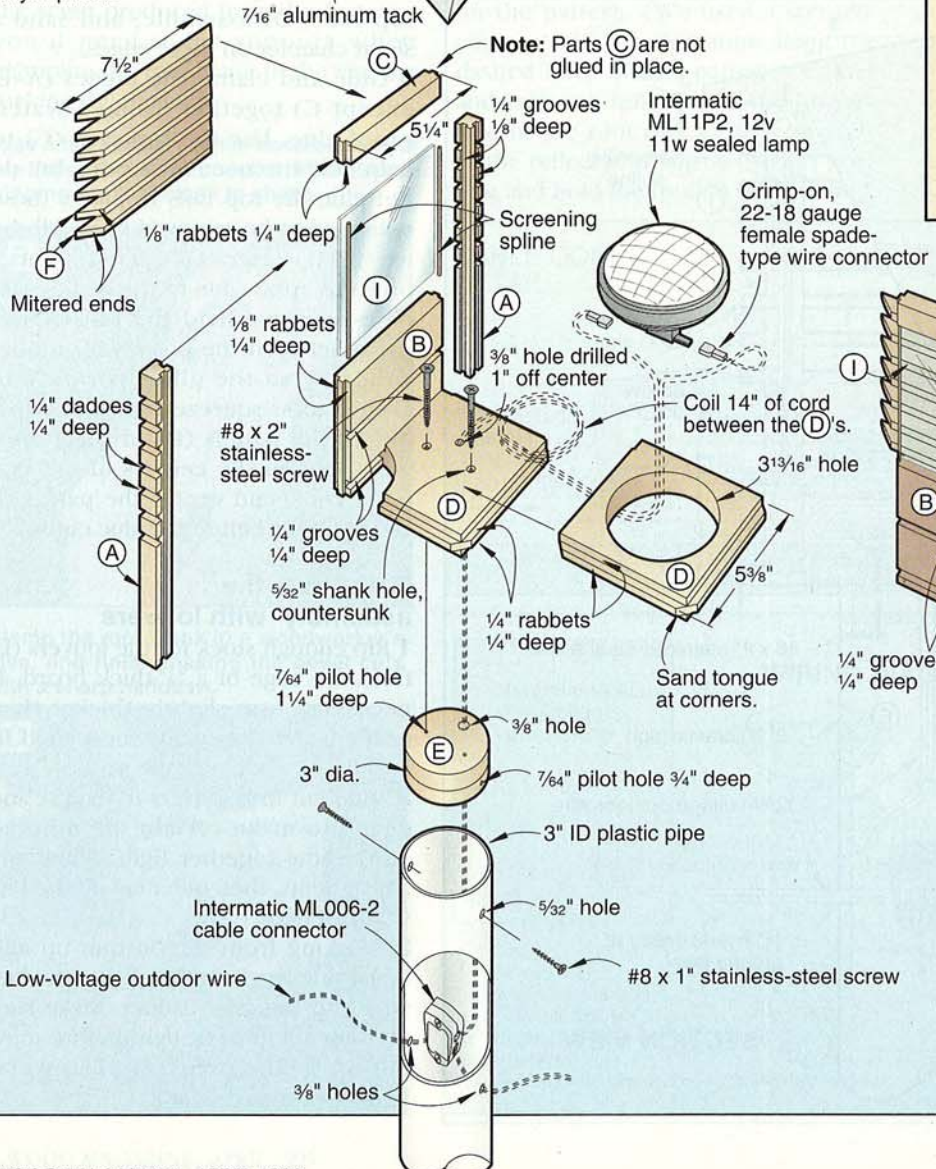
⅛ x 12 x 12" Clear acrylic plastic





7/16" aluminum tack

EXPLODED VIEW



SEE THE *WOOD PATTERNS®* INSERT FOR FULL-SIZE PATTERN

Double-check that the bottom set of dadoes is 4" from the bottom end of the marked post.

4 Attach a wooden extension to your miter gauge. Using the marked post as a guide, set a stop on the extension, and cut a pair of ¼" dadoes ¼" deep in each post in the surfaces *opposite* the previously cut grooves. As shown in *Photo A*, continue resetting the stop and making the cuts until all the dadoes have been cut.

Add the stiles, rails, and bottom panels next

1 Cut the sides (B) and top rails (C) to size. Use the same stop setting when crosscutting to ensure B and C are the same length.

2 Cut rabbets on the ends of parts B and C to fit snugly inside the ¼" grooves in the posts (A).

3 Cut a pair of ¼" grooves ¼" deep on the *inside* face of the sides (B) where dimensioned on the Section View drawing *below*.

4 Cut the bottom panels (D) to size. Cut ¼" rabbets ¼" deep along the top and bottom edges of both panels where shown on the Exploded View drawing. Check the fit of the panel tongue into the grooves in the sides (B). Sand the tongue at each corner where shown on the Exploded View drawing. Notice on the Section View that there will be a 1/16" gap between the panels and mating side pieces. This allows for wood movement.

5 Mark a 3 13/16" circle on one of the panels. Drill a blade start hole, and use a scrollsaw or jigsaw to cut the opening to shape. Or use a circle cutter in your drill press.

Mark all the cut locations on one post, transfer the locations, and cut the dadoes on the other posts.

6 Laminate two pieces of ¾×4×4" stock face-to-face. Later, bandsaw a disc (E) from the 1½"-thick lamination to fit inside 3" plastic pipe.

7 Center and screw the disc (E) to the bottom panel (D). Then, drill a ⅜" wire-access hole through the assembly (D/E) 1" off center.

8 Dry-fit the parts A, B, C, and D/E to check the fit. Mark the mating edges between the posts and the sides and top rails. Disassemble, and sand a slight chamfer on these edges.

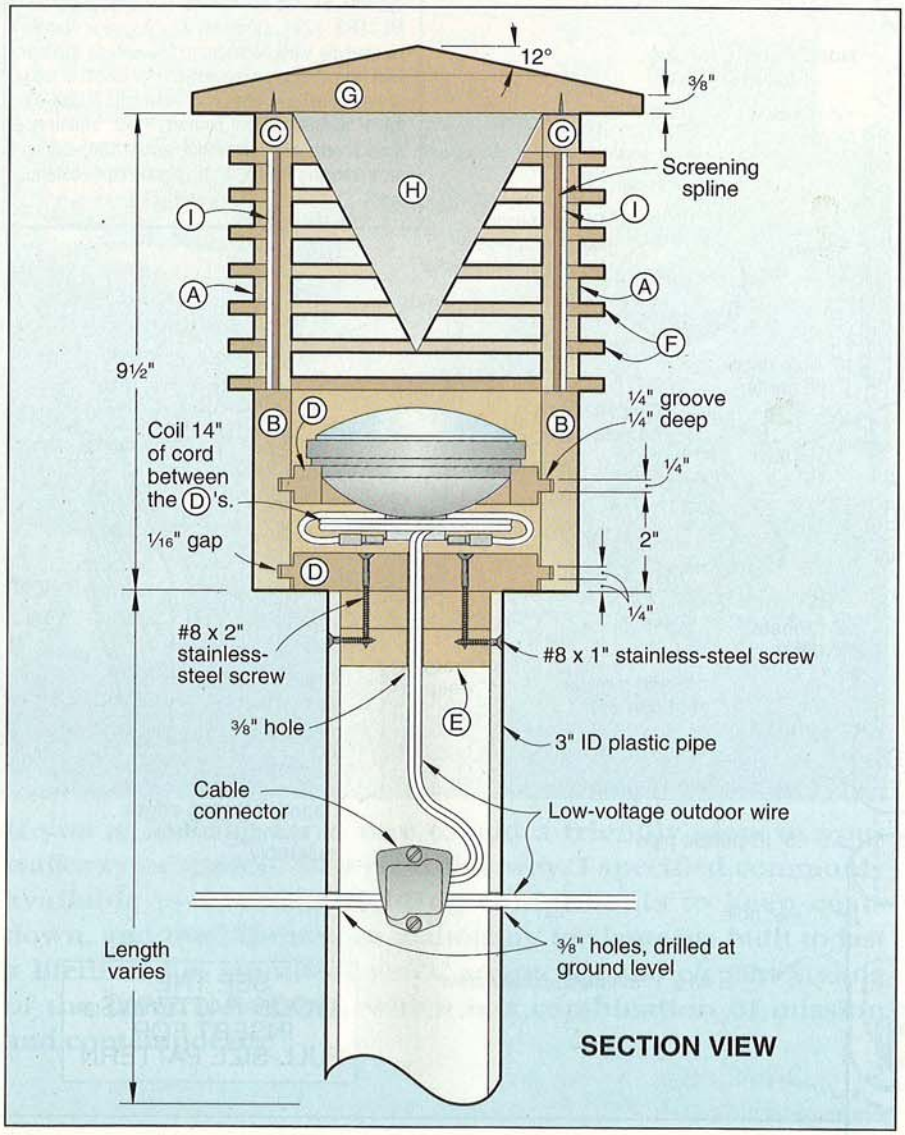
9 Glue and clamp the pieces (A–E, except C) together, using a waterproof glue. Use the top rails (C) to help hold the assembly square, but do not glue the top rails in place; these will need to be removed to install the lenses (I) later. (We used a small brush to apply glue to the mating surfaces, and we held the rails (C) in place between the posts with rubber bands.) Use the glue sparingly to avoid excess squeeze-out. Also, when gluing the panels (D) in place, put glue only on the centers of the end grain ends, and center the panels in the assembly before the glue cures.

Now, style the assembly with louvers

1 Rip enough stock for the louvers (F) from the edge of a ¾"-thick board. If necessary, saw slightly thicker than needed, and then plane for a good fit into the ¼" dadoes in the posts.

2 Miter-cut four louvers to length, and check to make certain the mitered ends come together tight. Make any adjustments, then miter-cut all the louvers to length.

3 Working from the bottom up and doing one level at a time, glue the louvers into the post dadoes. Make sure the mitered ends fit tight before moving up to the next set of louvers. Remove any excess glue.



Laminate and bevel-rip the roof to shape

1 Cut two pieces of ¾" stock to 9¼" square for the roof (G). Glue the pieces face-to-face, keeping the edges and ends flush. Later, trim the roof blank to 9" square.

2 Tilt your tablesaw blade 12° from center and raise it 1½" above the surface of your saw table. Attach a taller wood fence to your metal fence, and position the tall wood fence ⅜" from the bottom inside edge of the blade.

3 Bevel-rip each edge of the roof blank as shown in *Photo B*. Raise the blade and make another set of cuts. Repeat this until you've cut as high as your blade will go.

4 Clamp the roof blank in a woodworkers vise, and finish the cuts with a handsaw as shown in *Photo C*. Keep the scrap produced from the first cut; you'll need it for support when clamping the roof blank in the vise for making the final cut.

5 Sand the top surfaces of the roof (G) smooth. (We cut a piece of ¾" stock to the same width as our sanding belts by 16" long. Then, we crosscut a belt into a 16" length, and used spray adhesive to adhere it to the wood. Next, we used this as a sanding block to sand the roof top smooth.)

6 Finish all surfaces (inside and out) of the lantern assemblies and roof with a quality outdoor finish. (We used a penetrating oil finish.)

Fabricate the reflector, and install the lenses

1 Affix the full-size paper pattern from the insert to aluminum flashing with spray adhesive. Cut the reflector (H) to shape using metal snips or a utility knife and a straightedge.

2 Bend the reflector to shape as noted on the pattern. (We used a straightedge to fold the aluminum along the dashed lines on the pattern.) Center and tack the reflector to the bottom side of the roof (G). Center carefully as the reflector is what's used to position and hold the roof on the lantern.

Install the acrylic panels and electrical components

1 From ⅛" clear acrylic, cut the lenses (I) to fit into the grooves in the lanterns. Hold the panels in place with vinyl screening spline.

2 Cut 3" ID plastic pipe to length to mount the lantern on. (We buried our pipe about 12" into the ground and elevated the lanterns about 4" above the ground.) Using a V-block jig on your drill-press table, drill a ⅜" hole through the pipe at what will be just slightly above ground level. Then, drill a pair of 5⁄32" holes through the pipe for attaching the lantern base (E).

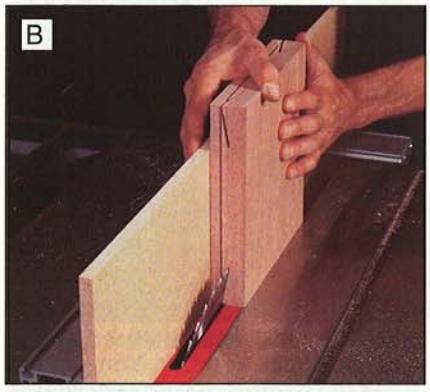
3 Sand the outside of the pipe to rough it up enough to accept paint. Paint the pipe (we did our black).

4 Bury the bottom end of the pipe in the ground. String the wire as shown in the Section View and Wiring Diagram. Consult the instructions with the transformer for wiring details. There are several sizes of transformers available, so observe the following: Lamps used are 11 watts each. Decide on the number of lanterns you will have in the system and multiply by 11. Buy a transformer rated at this many or more watts. Do not use a transformer rated less than the calculated total wattage.

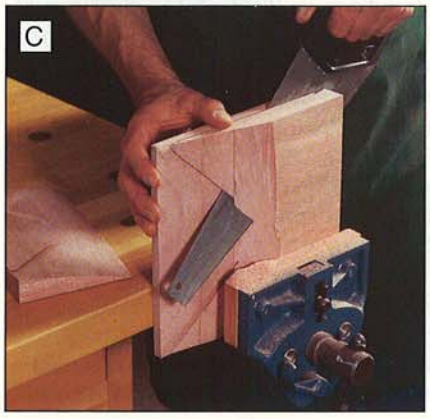
5 Attach the lanterns to the plastic pipe with screws.

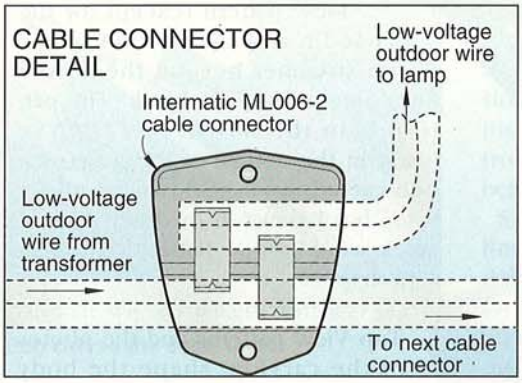
6 For ease in removing the lamps from the lanterns later, coil about 14" of wire between the two panels (D) where shown on the Section View.

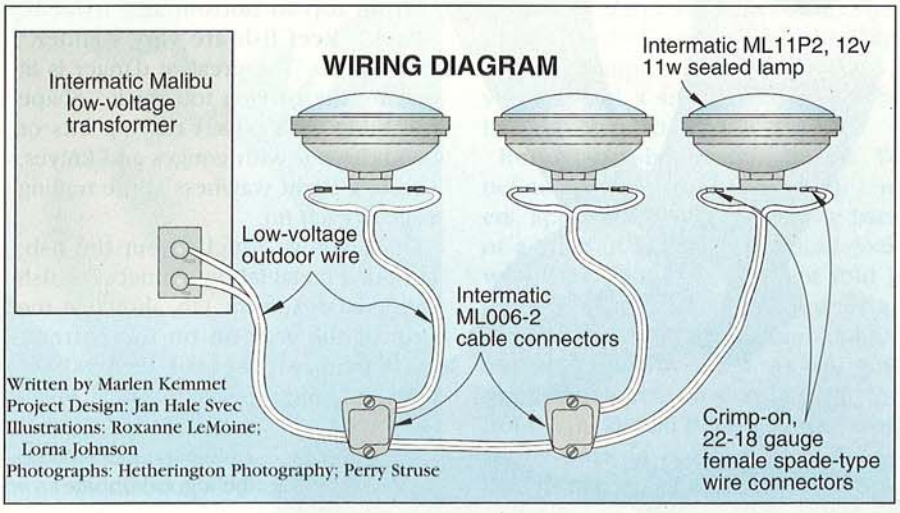
Use a tall auxiliary fence secured to your rip fence for extra support when bevel-ripping the roof blank to shape.



Clamp the roof blank in a woodworker's vise, and finish making the bevel cuts with a sharp handsaw.



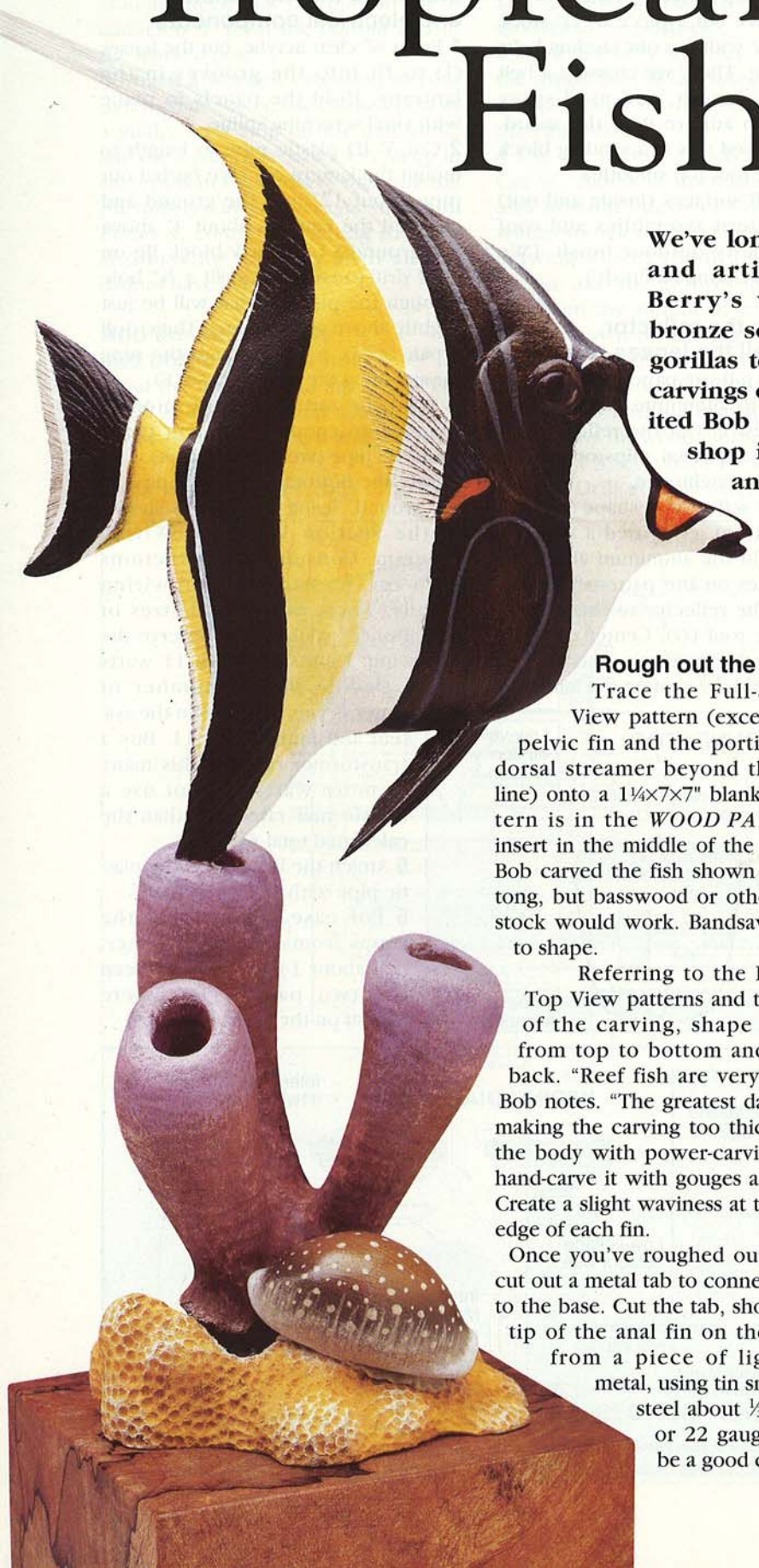

CABLE CONNECTOR DETAIL
Low-voltage outdoor wire to lamp
Intermatic ML006-2 cable connector
Low-voltage outdoor wire from transformer
To next cable connector

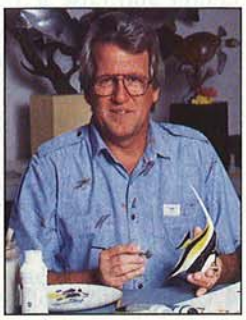

WIRING DIAGRAM
Intermatic Malibu low-voltage transformer
Intermatic ML11P2, 12v 11w sealed lamp
Low-voltage outdoor wire
Intermatic ML006-2 cable connectors
Crimp-on, 22-18 gauge female spade-type wire connectors

Written by Marlen Kemmet
Project Design: Jan Hale Svec
Illustrations: Roxanne LeMoine; Lorna Johnson
Photographs: Hetherington Photography; Perry Struse

Tabletop Tropical Fish

Carve a colorful reef-dweller





Bob Berry paints his Moorish Idol carving.

We've long admired the realism and artistry that mark Bob Berry's work, from life-size bronze sculptures of bears and gorillas to his renowned wood-carvings of fish. Recently we visited Bob (at *right*) at his workshop in El Cajon, California, and watched him carve a Moorish Idol, a Pacific reef fish that's one of his favorites. Here's how to carve one yourself.

Rough out the fish first

Trace the Full-Size Side View pattern (except for the pelvic fin and the portion of the dorsal streamer beyond the dotted line) onto a 1¼×7×7" blank. The pattern is in the *WOOD PATTERNS®* insert in the middle of the magazine. Bob carved the fish shown from jelutong, but basswood or other carving stock would work. Bandsaw the fish to shape.

Referring to the Front and Top View patterns and the photos of the carving, shape the body from top to bottom and front to back. "Reef fish are very slender," Bob notes. "The greatest danger is in making the carving too thick." Shape the body with power-carving bits or hand-carve it with gouges and knives. Create a slight waviness at the trailing edge of each fin.

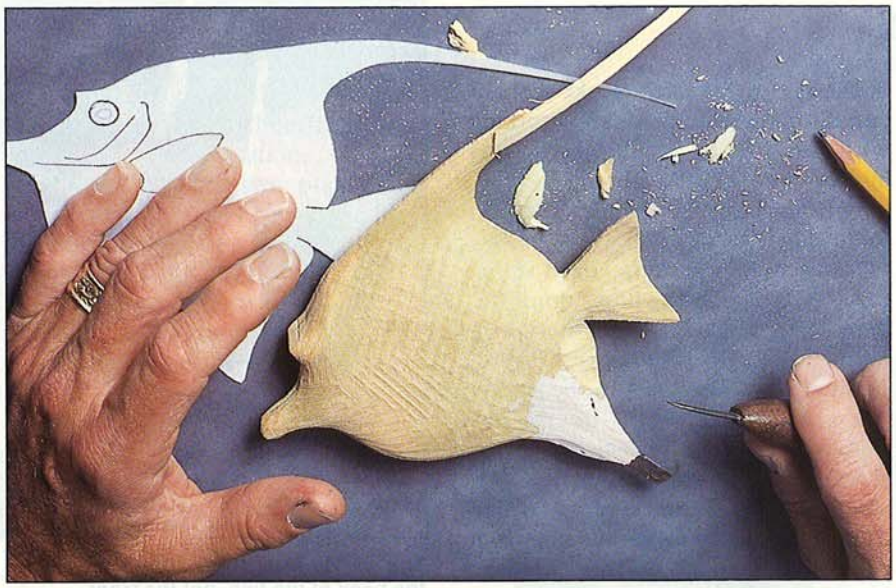
Once you've roughed out the fish, cut out a metal tab to connect the fish to the base. Cut the tab, shown at the tip of the anal fin on the pattern, from a piece of light sheet metal, using tin snips. Sheet steel about 1/32" thick—or 22 gauge—would be a good choice.

Position the tab on the backside of the fin, and trace around the top. Rabbet the fin to receive the tab, making the rabbet deep enough to center the tab on the thickness of the fin. Cement the tab into the rabbet with epoxy filler. (Bob uses Bondo, an autobody filler available from auto-supply stores.)

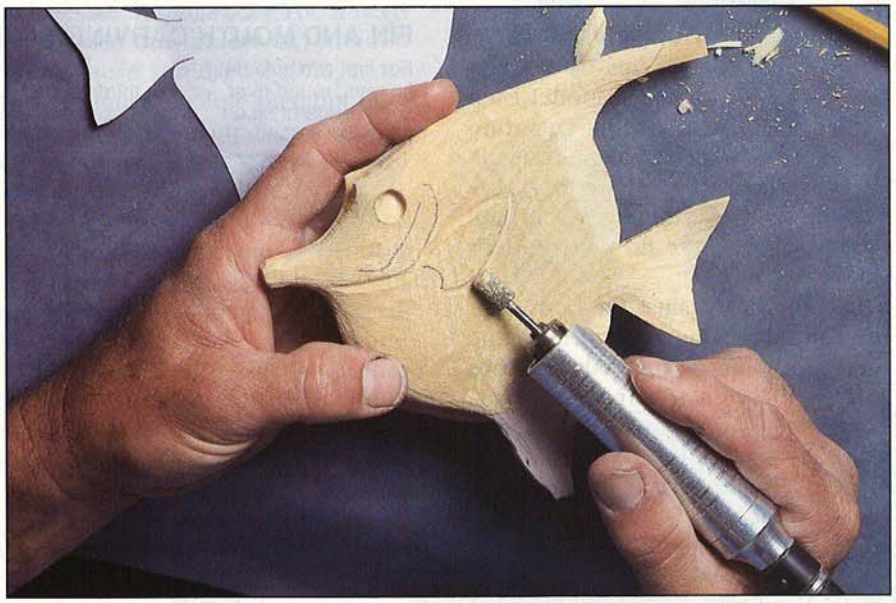
Cut a piece of ½"-wide flat basket-making reed to the shape shown for the dorsal fin streamer. Bob prefers the reed streamer because it's flexible, thus less likely than a carved-wood streamer to break. You can cut the reed, available from craft-supply stores, with scissors or a knife. Soak the reed in water if you need to straighten it. Position the streamer so it extends back from the tip of the dorsal fin, overlapping it by about ½", as shown *opposite page, top*. Cut a rabbet in the tip for the streamer.

Add realism with carved details

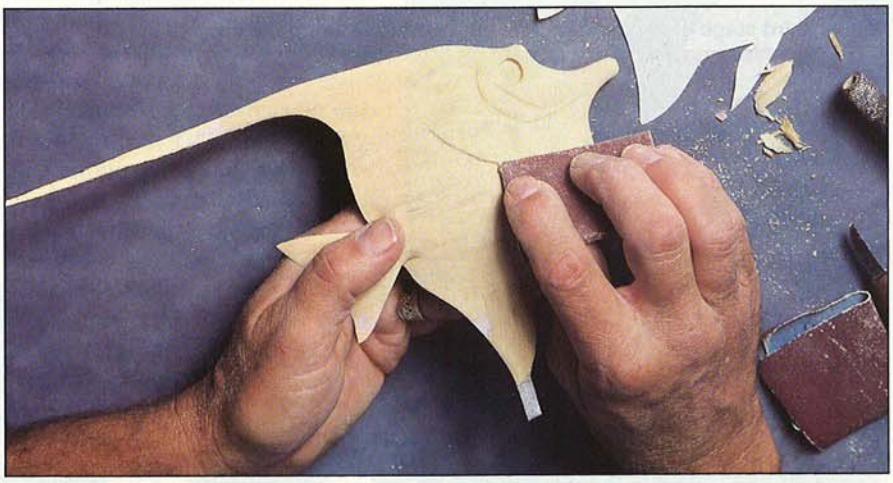
Draw the gill cover lines, pectoral fins, and eye holes on the carving where shown. Bore the eye holes about ¼" deep straight into the sides where marked, using the end of a cylindrical carving bit. Then, cutting with the corner of the cylindrical bit,



Bob fits the dorsal streamer to the tip of the fin. The filler on the anal fin, near Bob's thumb, holds the mounting tab in place.



Using a rotary handpiece and carbide burr, Bob carves the detail lines.



Sand the fish carefully. The surface should be as smooth as a tabletop.

carve the gill covers and outline the pectoral fins, as shown at *left*.

Carve down the body around the pectoral fins to raise the fins slightly above the body. On the real fish, these fins are tissue-thin and practically transparent, so don't make them stand out substantially from the body sides. Take care to separate the trailing edge of the dorsal and anal fins from the back of the body, above and below the tail fin area.

Sand all surfaces smooth. Bob sands first with 120-grit paper around a solid drum. "You can use a soft-drum sander," he says, "but it's more difficult to sand to a sharp edge with one—as around the pectoral fins, for instance." After drum-sanding, sand diagonally by hand. "You'll feel ripples or bumps with your fingers, so you can get a smoother surface by hand-sanding," Bob says.

Refine the shape as you sand. To define the edges of fins and gill covers, apply spray adhesive to the back of a strip of sandpaper (about 3×6" would be about right), then fold it into a square. The folded edge remains rigid when you sand along a feature, as shown at *left*. As you sand the fish's head, look at it from the front. You should be able to see most of the back inside wall in each eye hole from a straight-on view.

Continued

Tropical Fish

Now, fix up the fins with rays

Carve the fin rays next. Bob carves them in three stages, using two texturing stones like the one shown at *bottom right*. He slightly rounds the top edge of one stone against a dressing stone, as shown in the Fin and Mouth Carving Bits illustration. He leaves the edge sharp on the other.

Using the dressed stone, carve the first ray lines from the body to the edge of the fin, giving each stroke a slight curve for realism. Next, still working with the dressed stone, carve lines midway between the first ones, running from about the middle of the fin to the edge.

Finally, using the sharp-edged stone, carve closely spaced lines along the outer third of the fin. Bring those cuts onto the edge of the fin to create a serrated edge, as shown in the photo. Cut random serrations deeper, as shown, for a more realistic look. "Be careful not to make these battle scars mechanically uniform," Bob warns.

Extend the ray lines on the dorsal fin back to the joint with the streamer. From that point, blend the rays into the natural texture of the reed.

Ready for painting, the fish perches temporarily on the tallest sponge. It will be attached after painting.

To carve the base for your fish shown *above*, see the instructions on page 22.

Put on a pair of pelvic fins

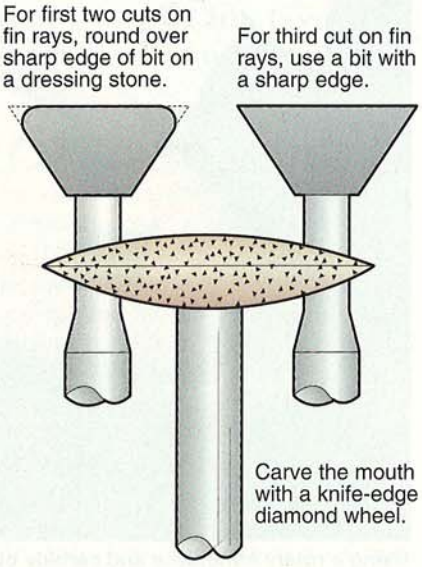
Cut two pelvic fins from stock about ⅛" thick. Model each fin with a slight curvature and a wave along the trailing edge. Make the fins about 1/16" thick, thinner toward the trailing edge. Carve fin rays on both sides of each.

Hold the fins against the bottom of the fish where shown, and mark the fin tab locations on the body. The fins form a V, open toward the front. Form slots for the tabs where marked, using the tip of a tapered rotary carving bit. Fit the fins to the body, as shown *above right*. Glue the fins in place with filler.

Carve the mouth opening as a horizontal V-cut with a slight pullback at

The pelvic fins come together toward the back of the fish, not the front.

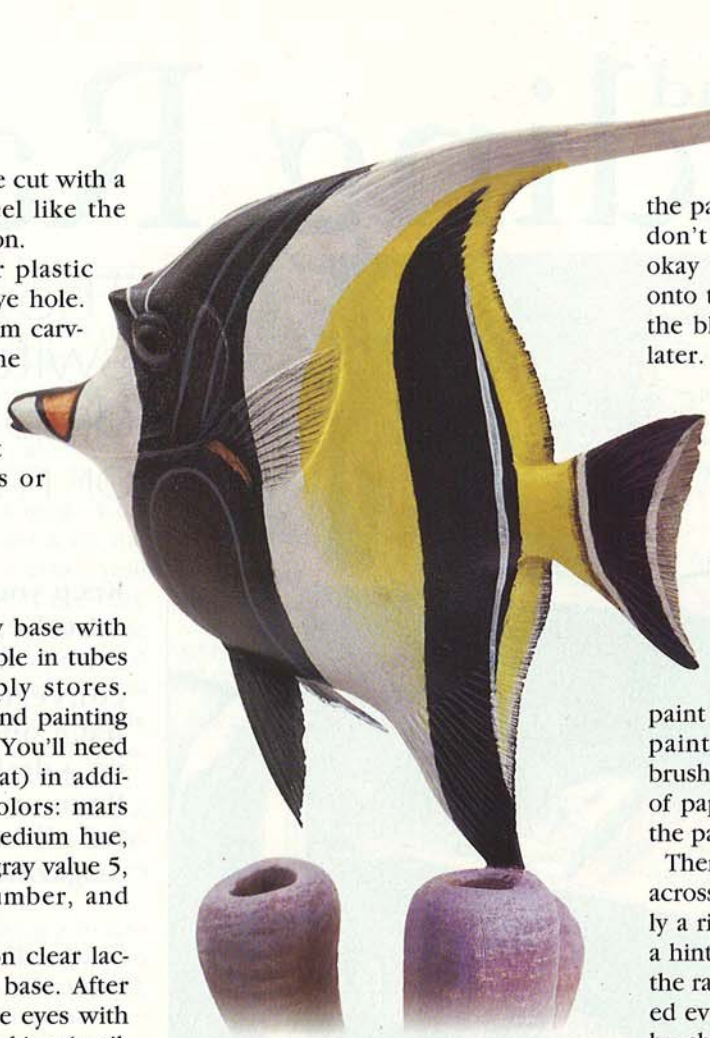
FIN AND MOUTH CARVING BITS


For first two cuts on fin rays, round over sharp edge of bit on a dressing stone.
For third cut on fin rays, use a bit with a sharp edge.
Carve the mouth with a knife-edge diamond wheel.

In the third stage of carving fin rays, cut serrations along the edge of the fin.

the corners. Bob makes the cut with a knife-edge diamond wheel like the one shown in the illustration.

Install a 12mm glass or plastic brown fish eye in each eye hole. (You can buy the eyes from carving-supply dealers.) Set the eyes with epoxy putty. Slice away any squeeze-out before it cures. Inspect the fish for rough spots or unfinished details.



Bring the carving to life with color

Paint the fish and display base with acrylic artist colors, available in tubes from art- or crafts-supply stores. (Instructions for carving and painting the base are on *page 22.*) You'll need white gesso (an undercoat) in addition to these standard colors: mars black, cadmium yellow medium hue, cadmium orange, neutral gray value 5, iridescent gold, burnt umber, and dioxazine purple.

Before painting, spray on clear lacquer to seal the fish and base. After the lacquer dries, mask the eyes with tape or brush-on liquid masking (available from art-supply stores); then brush on a coat of gesso. To texture the fish, Bob stipples the gesso by tapping the bristle end of his brush straight into the wet paint.

After the gesso dries, lightly draw painting guidelines on the fish. Refer to the pattern and the photographs of the finished carving for placement of the lines. Sharp delineations separate the colors on the Moorish Idol, unlike on many other fish, so take care to maintain sharp edges as you paint.

First, paint the black areas on one side of the fish. Let the paint dry. (You can hurry it along with a hair dryer.) Then paint the black along the back and on the other side.

Paint the yellow stripes next. Note that the color fades toward the bottom of the fish. To achieve this effect, thin the yellow paint, and apply it with a wet brush. Paint on one thin coat. Then, while it's still wet, build color toward the top of the stripe with additional coats. Pull the additional color from the top down onto the paler area to blend the stripe; you don't want distinct separations. It's okay to run over the line a little bit onto the black because you'll go over the black stripes with a second coat later. If you go over onto the white gessoed areas, touch up along the line with some gesso.

Paint the yellow stripes after the black paint dries. You can speed the drying of acrylic paints with a hair dryer.

Dry-brush the thin fins

Set off the nearly transparent pectoral fins by dry-brushing their rays with black. Where the rays are on a black part of the fish, paint them with neutral gray value 5. To dry-brush the rays, squeeze out a dab of paint on your palette. Pick up some paint with the end of a clean, flat brush. Stroke the brush across a piece of paper a few times to take most of the paint out of the bristles.

Then, flick the lightly loaded brush across the carved rays at approximately a right angle. This should leave just a hint of color on the carved edges of the rays. Repeat until you've highlighted every ray with a fine line. The dry-brushed rays shouldn't look blobby or uneven, and the paint shouldn't run into the bottom of the carved details. (If you haven't tried dry-brushing before, carve some rays on a piece of scrapwood for practice first.)

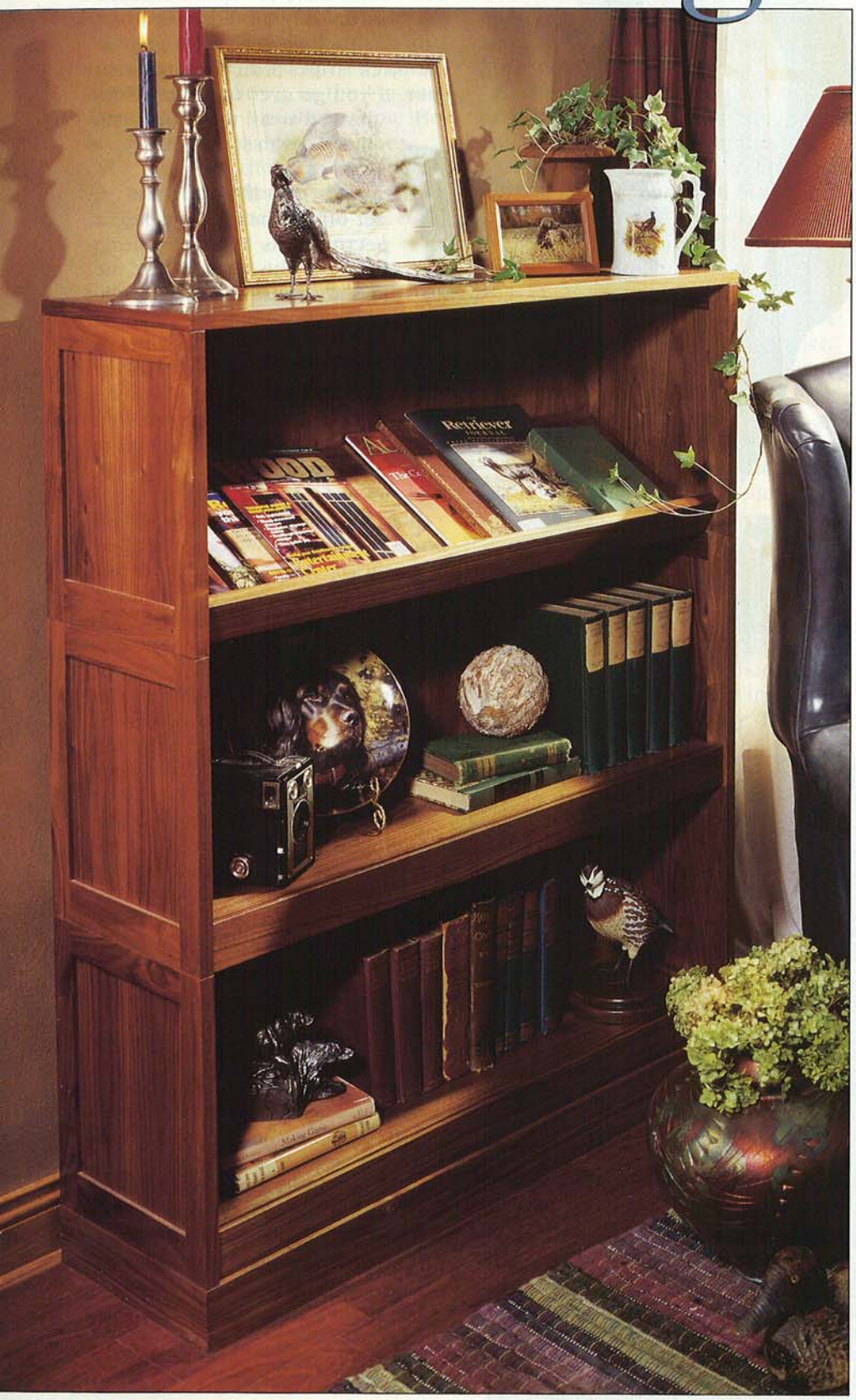
Paint the orange areas and the gray highlight lines. Refer to the photographs, and paint other details. Mix a bit of iridescent gold paint into some black, then brush it over the black stripes with a wet brush to add iridescent highlights.

Buying guide

Book and videos. "Fish Carving—An Introduction," by Bob Berry, covers carving and painting freshwater fish and saltwater reef fish. Bob shows trout carving in two videos, one featuring golden trout and the other a rainbow trout. All are available from CraftWoods, 2101 Greenspring Dr., Timonium, MD 21093. Call 800/468-7070 to order.

Project Design: © Bob Berry
Illustrations: Bob Berry; Roxanne LeMoine; Lorna Johnson
Photographs: Chula Vista Studio, Mike Armbrust; Hetherington Photography

All-Around Reading Rack



The shelves switch to display books or magazines

Keep your reading material—whether books or magazines—in order with this convertible case. You can hang one on a wall, set one on a desk, or stack several of them on the base as a beautiful all-in-one bookcase and magazine rack like this one.

Start with the sides

Note: *This section and the next describe construction of one case. You'll need to build three of them to assemble a unit like the one shown in the photograph* left.

1 Edge-glue two panels of ¼"-thick stock, and cut them to the size shown for the side panels (A) in the Bill of Materials. Finish-sand the panels.

2 Rip and crosscut the stiles (B), top rails (C), and bottom rails (D) to the dimensions shown.

3 Cut a groove equal in width to the thickness of the panel (A) and ⅜" deep in one edge of each stile, top rail, and bottom rail where shown in the drawing, *opposite page*. (We cut them with a ¼" dado set on a tablesaw.)

4 Cut tenons on both ends of the top rails and bottom rails to fit into the grooves in the stiles. The tenons should be the same thickness as the panel (A) and ⅜" long.

5 Assemble the case sides from parts A, B, C, and D as shown in the Case drawing. Don't glue the panel A in place—glue only parts B, C, and D.

6 Cut a ⅜" rabbet ¼" deep along the back of each side assembly where shown. Be sure to rabbet the inside

edge of each assembly to make left and right sides.

7 Drill holes for the shelf-support pins in the side panels where dimensioned on the Side Section View drawing. To drill them accurately, make a template like the one shown *below center*.

Make the drilling template from a ¼×7×11¾" piece of hardboard. After laying out the hole locations on the hardboard, drill the holes with a drill press. For drilling holes in the case sides, attach the template to the inside face of each part with double-faced tape, ensuring that the end that has two holes is at the front edge of the part. Drill the holes with a drill press, setting the tool's stop to limit depth.

8 Drill holes in the top and bottom of the case sides where shown. To facilitate stacking the units, these holes must be located accurately.

Ensure accuracy by making a fixture like the one shown *below right*. To make the fixture, cut a piece of stock 1½×2×11¾". Center a ¾" groove ½" deep along one edge. Center two 7/64" holes in the groove, one 11/16" from each end. Clamp the fixture to the case side as shown, and drill the holes. Install a drill stop on the bit to limit the depth. (We made a simple depth stop by drilling through a dowel rod of appropriate length, as shown.)

Save the fixture. You will modify it later for drilling dowel holes in the top and base.

9 Sand all surfaces smooth. Sand along each side assembly's outside edge to break the sharp corners.

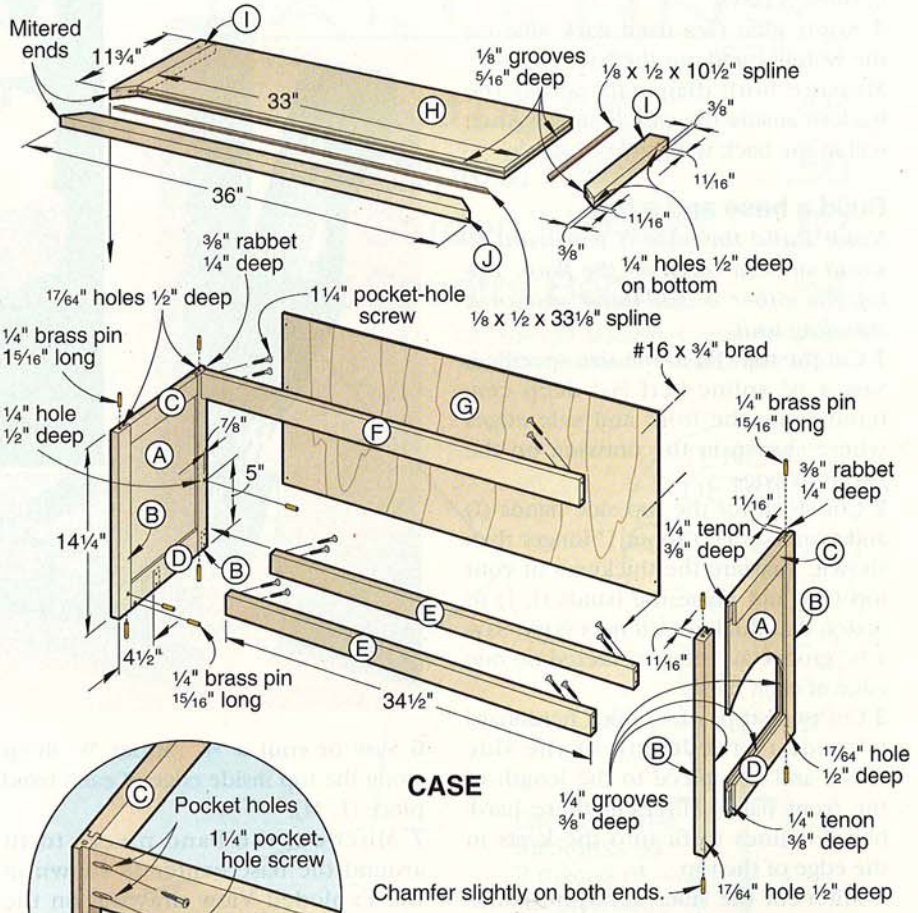
It's time to make your case

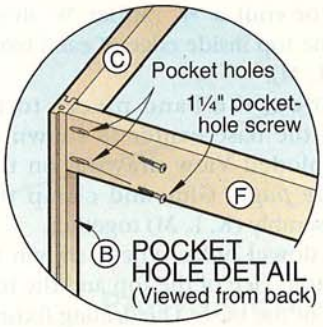
1 Cut the crossbars (E), top crossbar (F), and back (G) to size.

2 Drill pocket holes in the back of both crossbars (E) and the top crossbar (F). (We used a pocket-hole jig as shown *next page, top center*, centering each member in the jig.)

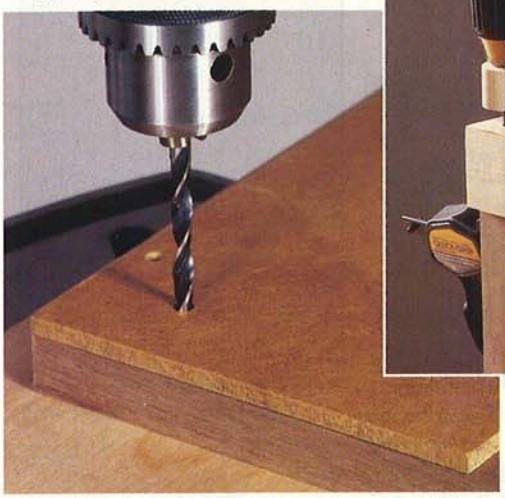
3 Clamp the side assemblies, crossbars, and top crossbar together, referring to the Case and Side Section View drawings. Drive pocket-hole screws into the top crossbar (F). Slide the rear

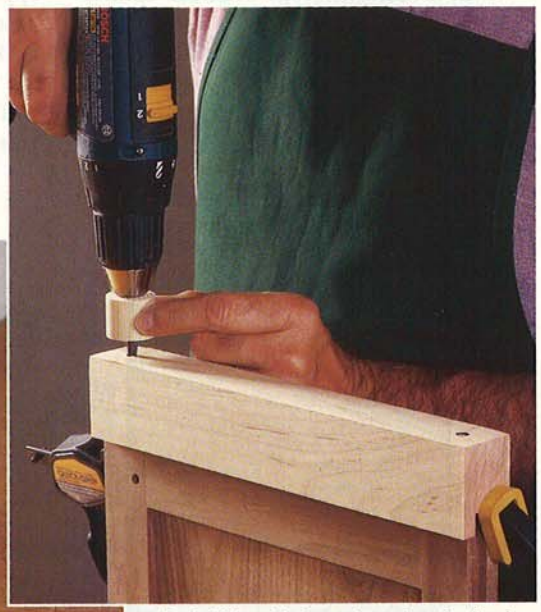
Continued





A hardboard template accurately locates the holes for the shelf-support pins in the case sides.





A drilling fixture locates indexing holes for stacking in the top and bottom of the case sides. The dowel on the bit serves as a depth stop.

crossbar out of the way, and drive in screws for the center crossbar. Then, reposition the rear crossbar and drive in those screws.

4 Apply glue (we used dark glue on the walnut), and put the back in place. Measure both diagonals across the back to ensure the case is square; then nail in the back with #16×¾" brads.

Build a base and a top

Note: *Build the base if you want to stand stacked cases on the floor. The top fits either a wall-hung case or a standing unit.*

1 Cut the top (H) to the size specified. Saw a ⅛" spline kerf 5/16" deep centered along the front and side edges where shown in the drawing on the *previous page*.

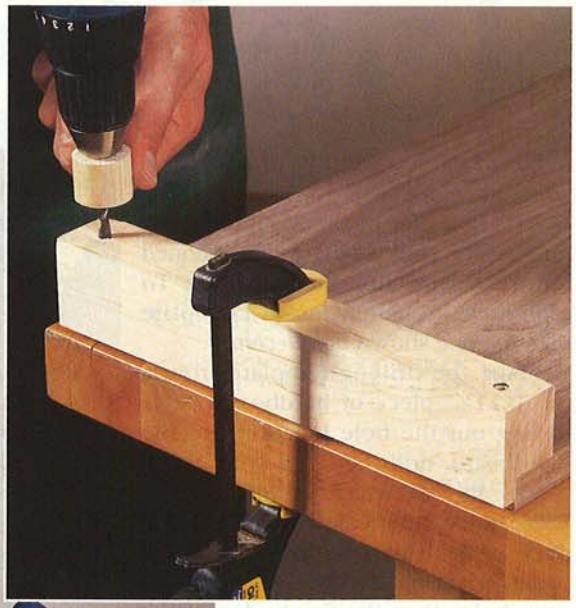
2 Cut stock for the top side bands (I) and front band (J) about 1" longer than shown. Measure the thickness of your top (H), and plane the bands (I, J) to match that thickness, if necessary. Saw a ⅛" groove 5/16" deep centered on one edge of each band.

3 Cut two strips of ⅛"-thick hardboard ½" wide to the length of the side bands and one piece to the length of the front band. Miter-cut these hardboard splines to fit into the kerfs in the edge of the top.

4 Miter-cut the sides and front bands to fit around the top. Glue the splines and bands to the top.

5 Cut the base center (K) to size. Cut the base side bands (L) and edge bands (M) about 1" longer than listed in the Bill of Materials.

Drill pocket holes in the ends of the crossbars for the screws that hold the case together.



With one leg cut off, the fixture used to drill indexing holes in the case sides will locate the mating holes correctly on the top and base.

6 Saw or rout a ¾" rabbet ⅜" deep along the top inside edge of each band piece (L, M).

7 Miter-cut the band pieces to fit around the base center as shown in the Exploded View drawing on the *opposite page*. Glue and clamp the base assembly (K, L, M) together.

8 Drill dowel holes where shown in the bottom face of the top and the top surface of the base. The drilling fixture you used to locate the holes in the top and bottom edges of the case sides will help you locate the holes in the base and top so they will line up with those in the case sides.

Modify the fixture by cutting off one leg of the groove. Then, clamp the fixture to the top (or base) as shown *above right*, and drill the holes. Install a depth stop for drilling.

9 Sand the top and base smooth.

All you need now is a shelf

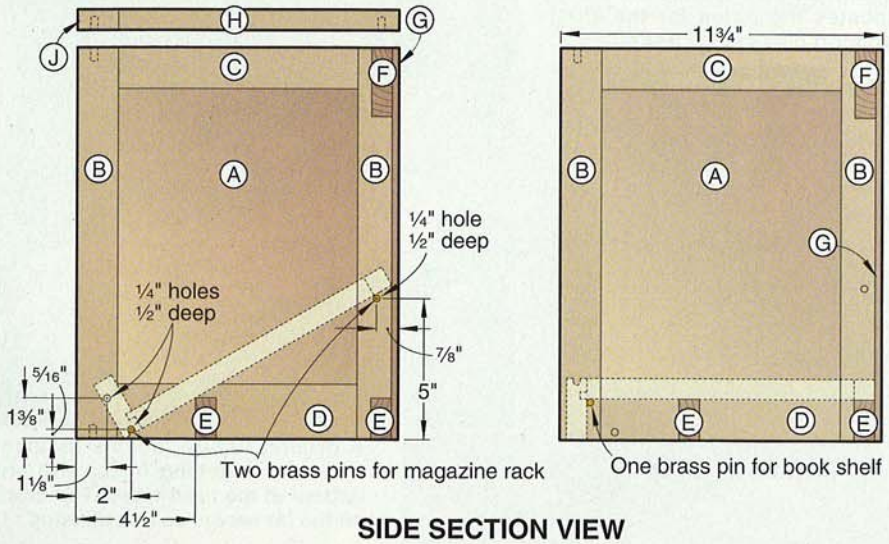
Note: *The same shelf holds either books or magazines, depending on how you install it. (See the Side Section View drawings,* left.*) The shelf simply rests on brass pins, so you can change it from one position to the other at any time. Make one shelf for each case you construct.*

1 Cut the shelf (N), band (O), and front ledge (P) to size.

2 Form a ¼" rabbet ½" deep along the front edge of the shelf (N).

3 Cut a ¼" groove ¼" deep ½" from the edge on one face of the front ledge (P). This groove will mate with the tongue on the shelf.

4 Glue and clamp shelf parts N, O, and P together. Sand the assemblies smooth after the glue dries.



SIDE SECTION VIEW

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A side panel	¼"	9 7/16"	11 7/16"	EW	2
B stile	¾"	1½"	14¼"	W	4
C top rail	¾"	1½"	9½"	W	2
D bottom rail	¾"	2"	9½"	W	2
E crossbar	¾"	1½"	34½"	W	2
F top crossbar	¾"	2½"	34½"	W	1
G back	¼"	35¼"	14¼"	WP	1
H top	¾"	10¼"	33"	WP	1
I* side band	¾"	1½"	11¾"	W	2
J* front band	¾"	1½"	36"	W	1
K base center	¾"	11"	35¼"	WP	1
L* side band	¾"	3"	11¾"	W	2
M* edge band	¾"	3"	36"	W	2
N shelf	¾"	10"	34⅜"	WP	1
O back band	¾"	¾"	34⅜"	W	1
P front ledge	¾"	2¼"	34⅜"	W	1

* Cut these parts slightly longer initially, then trim to finished length in accordance with instructions.

Materials Key: W–walnut, WP–walnut plywood, EW–edge-glued walnut.

Supplies: dark woodworker's glue, ¼" brass rod, 1¼" pocket-hole screws, #16×¾" brads, finish.

5 Using a ¼" round-nose bit and a table-mounted router, form a ¼"-deep groove centered along the edge of the ledge on the flat side of the shelf. Refer to the Exploded View drawing.

You're ready for a finish

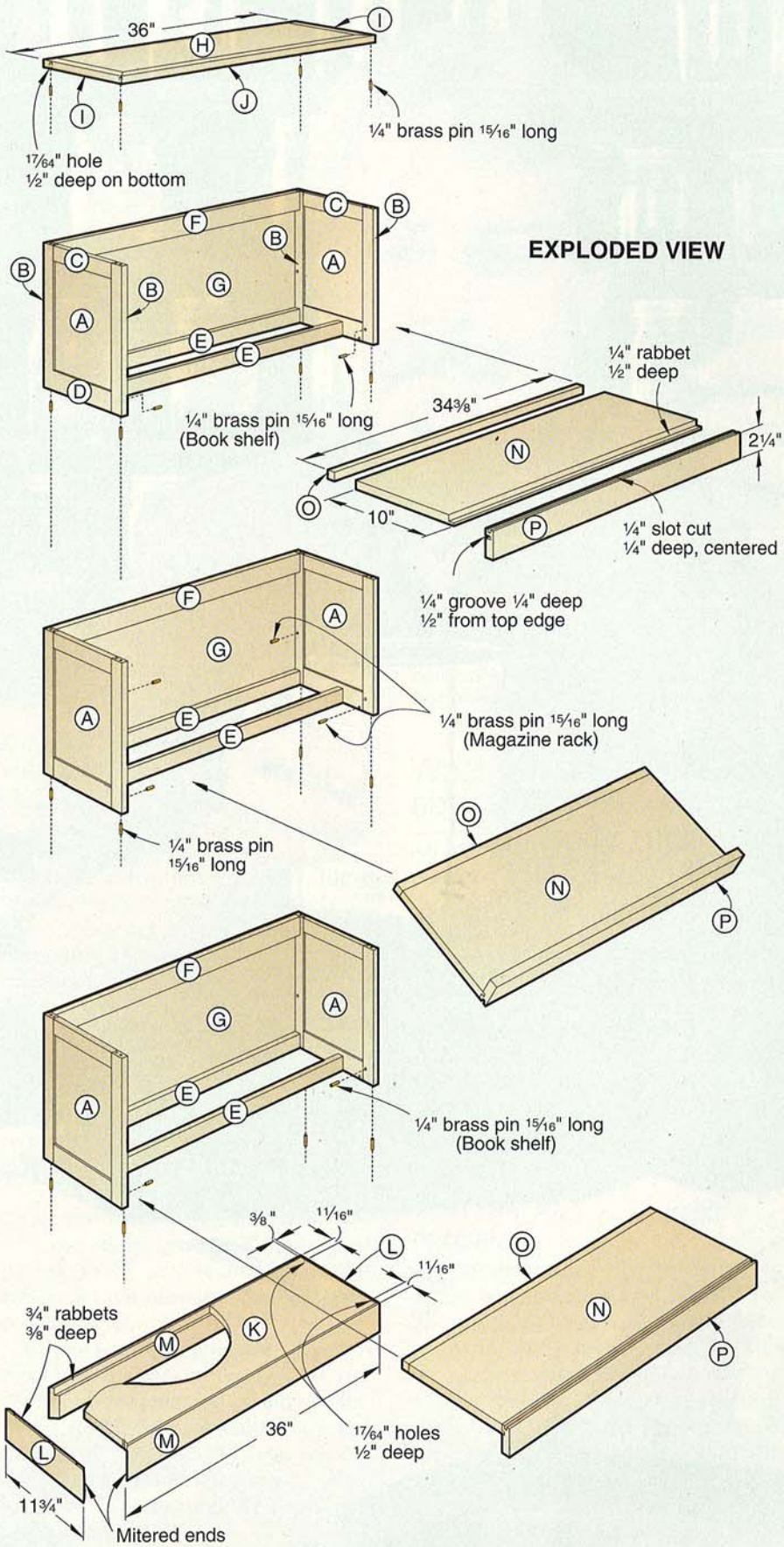
1 Finish-sand the cases, shelves, base, and top to 220 grit.

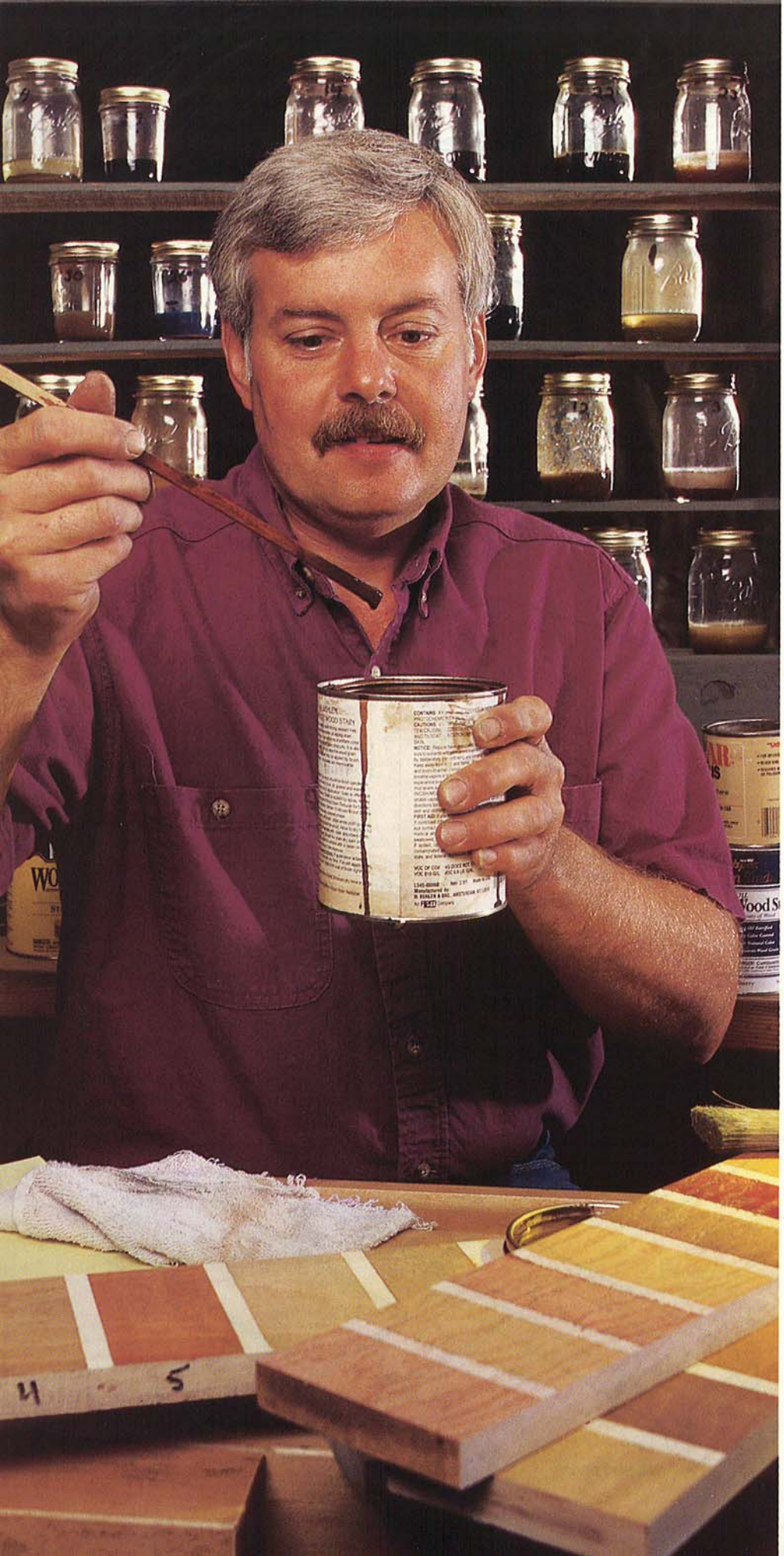
2 Apply a clear finish, such as Danish oil or lacquer. (We sprayed three coats of semigloss lacquer, sanding between coats with 320-grit sandpaper.)

3 Cut assembly pins 15/16" long from ¼"-diameter brass rod. Chamfer the pins slightly on both ends. (We chucked the pins in a portable electric drill and chamfered the ends against a stationary belt sander.)

You'll need four pins to install a shelf on a slant for magazines, two to put one in flat for books. In addition, you'll need four pins to install the top, four pins to locate a case on the base, and four pins between each pair of stacked cases. (We used 24 pins to assemble the stacked unit shown.)

Project Design: James R. Downing
Photographs: Hetherington Photography
Graphic Design: Martin Davis
Illustrations: Roxanne LeMoine; Lorna Johnson





The

Our testing helps

How often have you purchased a woodworking stain without having any idea about what's actually in the can? Too often, you have to go by the hyped-up claims on the product label. And many stains seem to promise the same things: "No mess," "Great results every time," and "No top coat is required."

A few words about our test procedures

Independent product tester Dave Henderson tried each of 31 different stains on red oak, an open-pored species that readily accepts stain, as well as the notoriously difficult-to-stain species of pine and maple. He also applied them on poplar. Dave observed the working properties of each stain (ease of application, evenness of color, and grain raising), took note of how long the stain was workable, and kept track of how much time elapsed before it dried.

To test for the presence of pigments and dyes (we'll tell you about the importance of these later), Dave let each stain sit in a glass jar for several days. Pigments settled to the bottom of the jar, while dyes remained suspended in the stain.

Note: We tested a single color of each product. It is possible that the chemistry and presence of dyes and pigments may vary from color to color within the same product line.

As shown on the *next page*, Dave also applied a small puddle of each stain to a sheet of glass and allowed them to dry 72 hours. This test helped determine whether the stains had an oil or resin (varnish) binder. More on that in the next section.

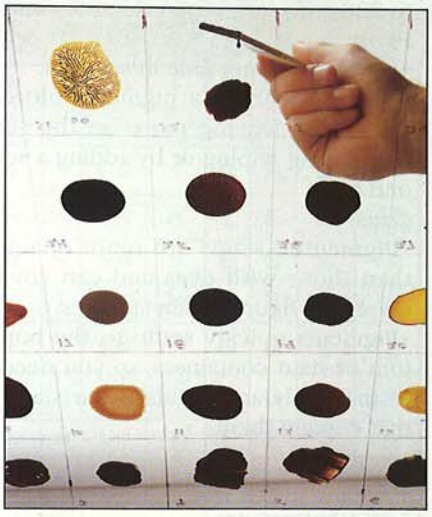
Product tester Dave Henderson applied 31 stains of various types to several species of wood to arrive at the recommendations in this article.

Stain Truth

you buy with confidence

Fast facts

- Before you stain, ask yourself if doing so is really necessary. Most woods look pretty good with just a clear finish.
- Avoid products that promise a shortcut by delivering a stain and protective finish in one step. You'll get better results by using separate stain and protective clear-coat products.
- No single stain is ideal for all projects. Use the information here to match the stain to the job at hand.



To test for the presence of resin and oil binders, we applied a small puddle of each stain to a sheet of glass. Products with little or no resin binder wrinkled within 24 hours. Those with some resin wrinkled after 48 to 72 hours. Products containing only resin or a high percentage of it did not wrinkle at all.

We found four basic types of stains

As you can see in the chart at the end of this article, we lumped the products into four categories. Here's a brief look at each:

Gel stains

Most of the stains in our test are liquid in viscosity, but 10 of them have a gel-like consistency. All of these thickened stains are petroleum-based, except for the Clearwater Color Co. product, which is water-based.

Gel stains work well on such species as birch, cherry, maple, and pine—woods that tend to look blotchy when stained with thin-bodied stains. Gel stains cover quite evenly, but removing excess gel from tight corners and crevices can prove troublesome. (For more on gel stains, see pages 54 and 55 of the April 1998 issue of *WOOD®* magazine.)

Oil-based stains with resin binder

These products have a resin (varnish) component that binds its colorant to the wood surface. The key difference between these products and the next group, which have an oil binder, is working time. Stains with resin binders give you, on average, about half as long to wipe them off after applying them compared to stains with an oil binder. (See chart for approximate working and drying times.) With that said, only the Dayco stain dried so fast that it proved troublesome when working on large surfaces. The Dayco product dries quickly because it is lacquer-based, making it best suited for spray application.

Oil-based stains with oil binder

(See above discussion.)

Water-based stains

Unlike petroleum-based stains, these products are made up largely of water. They dry relatively quickly and clean up with soap and water.

However, these products have earned a reputation for "raising the grain." This means they cause tiny, hair-like wood fibers to stand up, giving the wood surface a rough feel. You can sand them off, but then you risk exposing the natural wood surface. Of the water-based stains, the Clearwater Color Co. and Carver Tripp products raised the grain less than the others, and were nearly comparable to the petroleum-based stains, which did not raise the grain to a perceptible level.

Although most containers of water-based stains state clearly that the product is water-based, some do not. But you can be reasonably sure the product is water-based if you see references to "water cleanup," "odorless," or "environment-friendly" on the container.

What you should know about pigments and dyes

All stains have a colorant—either a pigment, a dye, or both—that colors the wood surface. Like the pigments in paints, stain pigments are ground-up particles, so they settle out when the stain is left to sit for some time. On the other hand, dyes dissolve completely in the stain, allowing the dye molecules to travel wherever the stain goes, into even the tiniest of wood pores. As you'll see, these differences are key to understanding many of the properties, pros, and cons of each type of colorant.

PIGMENTS

Key properties: Pigment particles lodge in scratches and large pore openings, but they don't attach to smooth, nonporous areas of the wood. So a pigment-stained surface will be darker in the porous-grain areas (spring growth) and lighter in the tight-grain areas (summer growth). If you want to accentuate the grain structure on a porous wood, such as red oak, a pigmented stain

Continued

The Stain Truth

will do it. And, if you sand a surface to 150-grit, it will accept more pigment (and be darker) than if you sanded it to 220-grit.

Pros:

- Pigments do not fade in sunlight.
- You can darken a pigment-colored surface by leaving more on the surface during wiping or by adding a second coat.

Cons:

- Pigmented stains are more opaque than those with dyes and can cover up showy figured-grain surfaces.
- Pigments quickly settle to the bottom of stain containers, so you need to thoroughly and regularly stir stains that contain them.

DYES

Key properties:

Because dye dissolves completely, it soaks into all areas of the wood more evenly than a pigment. This creates a surface that's a relatively uniform color in spring- and summer-growth areas. The grit of the sandpaper used does not affect the final darkness of the color.

Pros:

- Even coloration.
- A "transparent" look that accentuates figured grain.

Cons:

- Dyes fade in sunlight.
- Stains with dye flow into large wood pores, then often flow back out and form tiny dark puddles of concentrated dye. You must check the stained surface periodically and wipe away these puddles until the stain dries.

Oil-based stains with oil binder

Oil-based stains with resin binder

The penetration myth

Water-based stains

Manufacturers frequently use the word "penetrating" in the names and descriptions of their stains. The word implies that the stain goes below the surface of the wood to provide a long-lasting layer of colorant. But, contrary to this notion, none of the stains in our tests penetrated visibly beyond the wood surface.

However, we did detect slight penetration into open-grain woods, such as red oak. With these, straw-like grain pores draw in a minute amount of dye. Even so, a light sanding quickly removed the coloration from all of the tested surfaces.

The myth of "penetration" also goes hand-in-hand with the misbelief that the longer you leave a stain on a surface, the deeper and darker the color will be. In our tests, the stains imparted the same level of coloration regardless of how long we left them on the surface. In fact, we had our best success when we wiped the stains off *immediately* after applying them, especially with the faster-drying brands. Leaving them on longer simply made it harder to wipe off excess stain, and actually contributed to uneven coloration.

Gel stains

What we discovered about "one-step" products

Some of the stains we tested have names that promise stain and protection in one application. Some examples: Minwax Polyshades Stain and Polyurethane in One Step, Zar Plus Stain and Polyurethane in One, and Ace Great Finishes One-Step Stain and Finish. Other products allude to a protective-finish component: General Finishes Sealacell Tung Oil Sealer and Stain, Valspar American Tradition Stain and Varnish, and Deft Step Plus Stain and Finish.

Although the appeal of a product that stains and protects in one step is undeniable, we found that none of the products in our test provided a significant amount of protection. To build an effective layer of protection, we had to apply so many coats that the colorant in the product completely masked the wood, creating a painted look.

Our advice: Select a stain for its ability to stain a surface. Ignore claims about its protective qualities. After staining the surface, protect it by applying your choice of clear finish.

Our recommendations

Before you apply any stain to a project, always test it on a sample of wood that's identical to the wood in your project. The results you get can be quite different in color and evenness from the store samples.

The chart at *right* tells you how each of the stains performed for us. Note that some of the low-priced products worked as well, or better, than some of the premium-priced stains. Here are some more pointers to keep in mind when choosing between the four categories of stains:

- For most projects, we suggest you try an oil-based stain. If time is of the essence, go with one of the oil-based products with a resin binder. If you're not in a hurry, you'll appreciate the extra working time afforded by the oil-based stains with an oil binder.
- For woods that tend to blotch when stained, such as cherry, maple, and pine, try a gel stain. Just be prepared to work a little at wiping the stain out of crevices.
- If ease of cleanup and lack of odor rank high on your priority list, try a water-based stain. Before you jump in, though, make sure you can knock down any raised grain with a light sanding that doesn't go through the stain. (You can limit the amount of grain-raising by lightly wetting the surface and allowing it to dry before your final sanding prior to staining.) And don't use water-based stains in hot weather (more than 80° F). At high temperatures, they dry too fast for manageable hand application.

Manufacturer's listing:

Ace
630/990-6600
Bartley
800/787-2800
Behlen
800/545-0047
Cabot
800/877-8246
Carver Tripp (Parks Corp.)
800/225-8543
Clearwater Color Co.
(available from mail-order catalogs)
Constantines
800/223-8087
Garret Wade
800/221-2942
Woodworker's Supply
800/645-9292
Dayco (James B. Day & Co.)
800/356-4737
Deft
800/682-4369
Formby's
800/290-1105
General Finishes
800/783-6050
McCloskey (Valspar Corp.)
800/637-7793
Minwax
(Available nationwide at hardware stores and home centers)
Olympic
(PPG Architectural Finishes)
800/441-9695
Sherwin Williams
800/474-3794
Valspar
800/637-7793
Varathane (The Flecto Co.)
800/635-3286
Watco (The Flecto Co.)
800/635-3286
Wood-Kote
800/843-7666
Zar
(United Gilsonite Laboratories)
800/272-3235

HOW 31 POPULAR STAINS PERFORMED FOR US

CATEGORY	PRODUCT	CONTAINS PIGMENT (Y) YES, (N) NO	CONTAINS DYE (Y) YES, (N) NO	VISCOSITY (1)	WORKING TIME (MINUTES) (2)	MINIMUM DRYING TIME (HOURS) (3)	PERFORMANCE (4) EASE OF APPLICATION	EVENESS OF COLOR	GRAIN-RAISING	PRICE (QUART) (5)
GEL STAINS (All are oil-based, except Clearwater Color Co. product, which is water-based)	BARTLEY GEL STAIN	Y	N	S	5-15	8	G	G	E	$15.69
	BEHLEN MASTER GEL STAIN	Y	N	S	5-15	6	E	E	E	6.95 (8 oz.)*
	CLEARWATER COLOR CO. SMOOTH AND SIMPLE WOOD STAIN	N	Y	M	5-10	1	G	E	G	8.95 (16 oz.)*
	FORMBY'S WIPING STAIN	Y	N	M	5-15	24	E	E	E	8.39 (8 oz.)*
	McCLOSKEY GEL STAIN	Y	N	M	5-15	24	E	G	E	8.99
	MINWAX GEL STAIN	Y	Y	S	5-10	24	G	E	E	8.84
	MINWAX WOOD SHEEN RUBBING OIL STAIN AND FINISH	Y	N	S	5-20	2	G	G	E	6.19 (12 oz.)*
	VALSPAR'S AMERICA TRADITION GEL STAIN	Y	N	M	5-15	24	E	G	E	4.94
	VARATHANE GEL STAIN	Y	N	M	5-10	8	E	E	E	8.72
	WOOD-KOTE JEL'D STAIN	Y	N	M	5-10	2	F	E	E	10.98
OIL-BASED STAINS WITH RESIN BINDER	BEHLEN 15-MINUTE WOOD STAIN	Y	N	W	10-20	1/2* 24	G	E	E	14.50*
	DAYCO BLOND-IT WOOD FINISH	Y	Y	W	5-10	1	F	G	E	7.28
	GENERAL FINISHES SEALACELL TUNG OIL SEALER AND STAIN	Y	N	W	15-20	8	E	E	E	10.49
	McCLOSKEY TUNG SEAL OIL BASE WOOD STAIN	Y	Y	W	15-20	24	E	F	E	7.49
	MINWAX POLYSHADES STAIN AND POLYURETHANE IN ONE STEP	Y	N	W	*	8	F	G	E	8.63
	MINWAX WOOD FINISH	N	Y	W	15-20	8	E	F	E	5.49
	OLYMPIC INTERIOR OIL BASED WOOD STAIN	Y	N	W	15-20	5	E	G	E	5.43
	SHERWIN WILLIAMS WOOD CLASSICS INTERIOR WOOD OIL STAIN	Y	N	W	10-20	2	G	G	E	6.99
	VALSPAR AMERICAN TRADITION PENETRATING OIL INTERIOR WOOD STAIN	Y	N	W	30-45	24	E	G	E	6.94
	VALSPAR AMERICAN TRADITION STAIN AND VARNISH	Y	Y	W	*	24	F	F	E	4.57
	ZAR PLUS STAIN AND POLYURETHANE IN ONE	Y	N	W	*	12	F	G	E	5.99 (16 oz.)
OIL-BASED STAINS WITH OIL BINDER	ACE GREAT FINISHES OIL-BASED WOOD STAIN	Y	Y	W	30-45	8	E	F	E	5.49
	ACE GREAT FINISHES ONE-STEP STAIN AND FINISH	Y	N	W	*	24	F	F	E	6.49
	CABOT STAINS OIL-BASED WOOD STAIN	Y	N	W	30-45	24	E	E	E	5.49
	DEFT STEP SAVER PLUS STAIN AND FINISH	Y	N	W	30-45	24	F	G	E	8.39 (8 oz.)**
	WATCO DANISH OIL FINISH	Y	N	W	30-45	72	E	E	E	9.99
	ZAR STAIN AND SEALER WOOD STAIN	Y	N	W	30-45	24	E	F	E	4.69 (16 oz.)
WATER-BASED STAINS	CARVER TRIPP SAFE AND SIMPLE WOOD STAIN	Y	?	W	5-20	1	G	G	G	2.06
	CLEARWATER COLOR CO. SMOOTH AND SIMPLE WOOD STAIN	(see results in gel stains section)								
	GENERAL FINISHES ENVIRONMENT FRIENDLY WATER-BASED WOOD STAIN	Y	?	S	5-20	2	G	G	F	12.50
	MINWAX ACCENTS DECORATIVE STAIN	Y	Y	W	5-20	4	G	G	F	8.87
	VARATHANE ELITE DIAMOND WOOD STAIN	Y	?	W	5-20	1	G	G	F	3.32

Notes:

1. (M) Mayonnaise-like (S) Syrup-like (W) Water-like
2. Varies depending on temperature and humidity. (*) Brush-on, no-wipe-off product. Applied in same way as a brush-on clear varnish.
3. Under ideal conditions -- low humidity and about 70° F. (*) One-half hour if you use Behlen's specified topcoat.
4. E Excellent G Good F Fair
5. Price we paid locally for one quart (32 oz.) unless noted otherwise. (*) Not available locally. Purchased from Garrett Wade catalog (800/221-2942) (**) Aerosal can

Written by Bill Krier with Dave Henderson Photographs: Baldwin Photography

55¢
BEANS
CARROT
ONION
CARROTS
TOMATOES
SQUASH
CUCUMBER

Fun-for-all Garden Markers

Scrollsawn signs show what's growing where

It's pretty easy just to stick empty seed packets on top of stakes to mark your newly planted garden. But, it'll be more fun to watch your garden grow with these lighthearted markers heading up the rows.

Make some plywood first

1 Rip a 1×10 (nominal) clear cedar board 6' long to 8" wide. Resaw and plane three ⅛"-thick boards from it.
2 From the planed and resawn stock, rip and crosscut 16 pieces ⅛×6×8" and eight pieces ⅛×8×6".
3 Build eight laminations, each made up of one ⅛×8×6" piece between two ⅛×6×8" pieces. Glue the laminations with weather-resistant adhesive, and clamp until the glue dries. Clamp the laminations between ¾×6×8" pieces of plywood to keep them flat. Laminating stock like this minimizes warpage of the sawn signs.

Saw the seedy characters

1 Photocopy the eight full-size patterns in the *WOOD PATTERNS®* insert in the middle of the magazine. Adhere the patterns to the laminated cedar blanks, using rubber cement or spray adhesive (temporary bond).
2 Drill 1/16" blade start holes inside the cutout areas. Because there are so many inside cuts in the garden markers, you may be tempted to drill the round eye openings rather than sawing them. "Don't do that," counsels scrollsaw whiz Rick Hutcheson of Grimes, Iowa, who cut out our markers. "You're better off to saw them. Perfectly round drilled holes will really stand out."
3 Thread your blade through the first start hole, and begin sawing the pattern. Rick suggests a #2R scrollsaw blade (.029×.013" reverse-tooth, with 20–23 teeth per inch) for the interior cuts on the garden markers. Start with the largest, innermost cutouts, and work your way to the outside. Saw around the outside pattern line last.

For sharp-looking signs, scrollsaw right to the point

"For the thin, sharp points in these designs, you're better off to saw into the point from both sides," Rick says. "Spinning a turn at the end of a cut, even with the fine blade, will round most points noticeably."

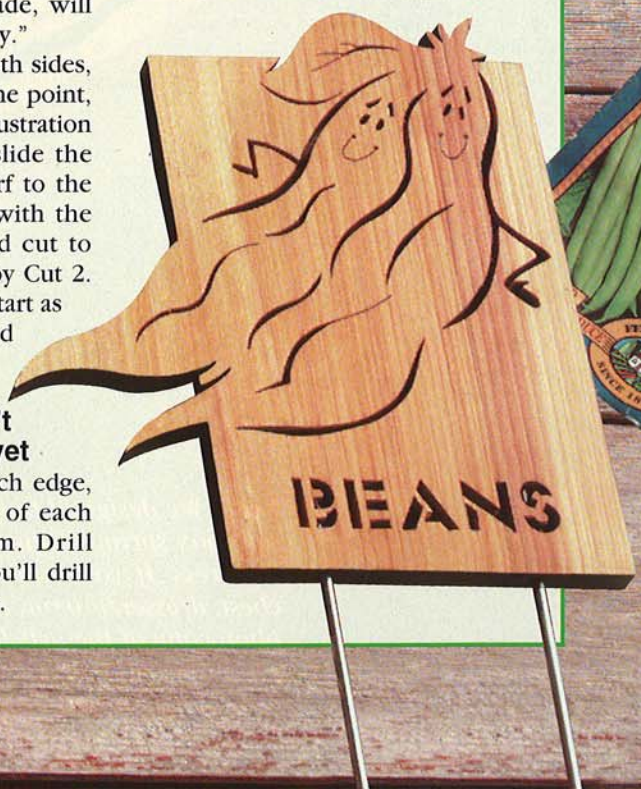
To cut to a point from both sides, saw from the start hole to the point, as shown by Cut 1 in the illustration with the patterns. Then, slide the blade back through the kerf to the start hole. Spin the work with the blade in the start hole, and cut to the other point, as shown by Cut 2. Slide the blade back to the start as before, and make Cuts 3 and 4 in similar fashion.

Not so fast! You haven't finished your veggies yet

1 Drill ⅛" holes 1" from each edge, centered on the thickness of each marker along the bottom. Drill 1" deep. In some cases, you'll drill into the pattern. That's okay.
2 For colorful accents, paint the edge of each marker with a color suggesting the vegetable depicted. (We brushed on gloss exterior enamel in red, orange, yellow, dark green, and light green, as shown in the photo *above*.)
3 After the enamel dries, dip each marker in a clear, penetrating exterior finish, such as a deck or fence finish. (We dipped ours in Penofin.)
4 Cut 16 pieces of ⅛" steel or brass rod 18" long. Slip one into each marker hole, and stick the signs out in the garden.

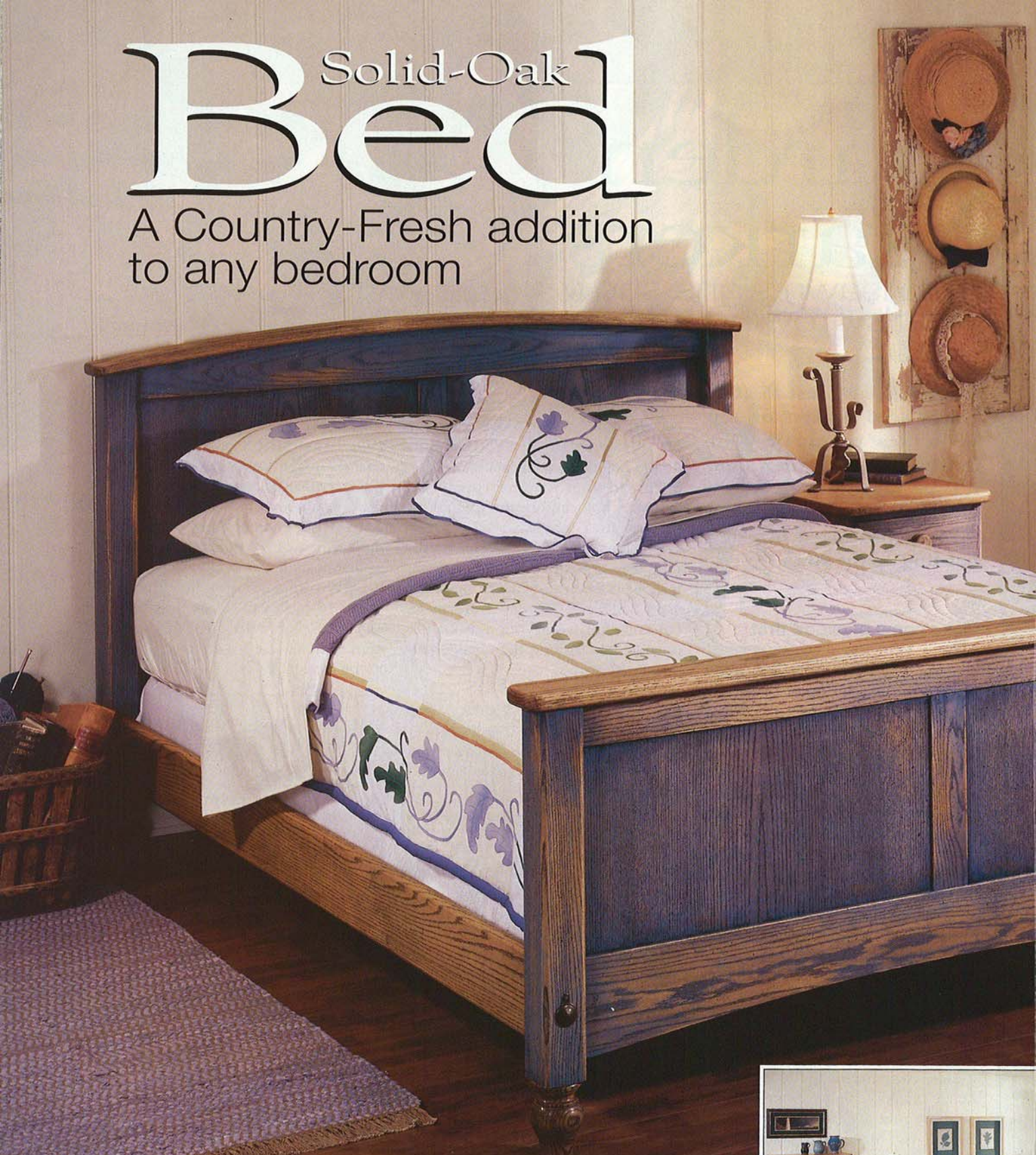
SEE THE *WOOD PATTERNS®* INSERT FOR FULL-SIZE PATTERNS

Project Design: Paula Nelson
Illustrations: Roxanne LeMoine: Lorna Johnson
Photographs: Hetherington Photography



Solid-Oak Bed

A Country-Fresh addition to any bedroom



Note: *We designed this bed to fit a queen-size mattress and box spring. Adjust accordingly for a different size mattress. If you don't have the back issues with the chest, dresser/mirror, and nightstand, but would like a photocopy of the article(s), send a 9×12" self-addressed envelope with $1.21 postage and $5 per article ($12 for all three) to WOOD® Magazine's Bedroom Set, 1716 Locust Street-GA310, Des Moines, IA 50309-3023.*

Dreamland takes on a whole new look with this solid-oak bed design. It's the last piece in our "Proud Traditions Series," which includes a dresser with mirror, a chest of drawers, nightstand, and now this. Frame-and-panel construction makes for lifelong endurance, and you can choose a country look, as shown, using our finish process.

Form sturdy legs to support the bed

1 From 1 1/16" oak (commonly called five-quarter stock), cut six headboard leg parts (A) to 3 3/16×38 1/4" and six footboard leg parts to 3 3/16×24". See the Headboard/Footboard Legs drawing *below right* for reference.

2 Lay out the notch and mortise locations on each leg piece where dimensioned on the drawing. Remember that you're making a matching pair of headboard and footboard legs, with each pair having a left and right member. *Verify all the marked locations before cutting.*

3 Attach a wood top and fence to your drill-press table. Then, using a 3/4" Forstner bit, drill holes inside the marked mortise outlines, and square-up the mortises with a chisel. You also could cut the mortises to shape with a jigsaw.

4 Cut the two notches in the center piece of each leg.

5 Mark the centerpoints where shown on the drawing, and bore a 1 1/8" counterbore 7/8" deep. Then drill a 7/16" hole through the center of the counterbore and through the leg. Back the stock to prevent chip-out when drilling through the leg. Note that these holes are bored in the surfaces *opposite* the side rail mortises.

6 Hold together two pieces of the 1/4" oak plywood you'll be using for the headboard and footboard panels (J, K), and measure their combined thickness. (Ours measured 7/16".) Mount a dado set in your tablesaw, and cut a groove to this thickness plus 1/32" by 1/4" deep in the center section of each leg.

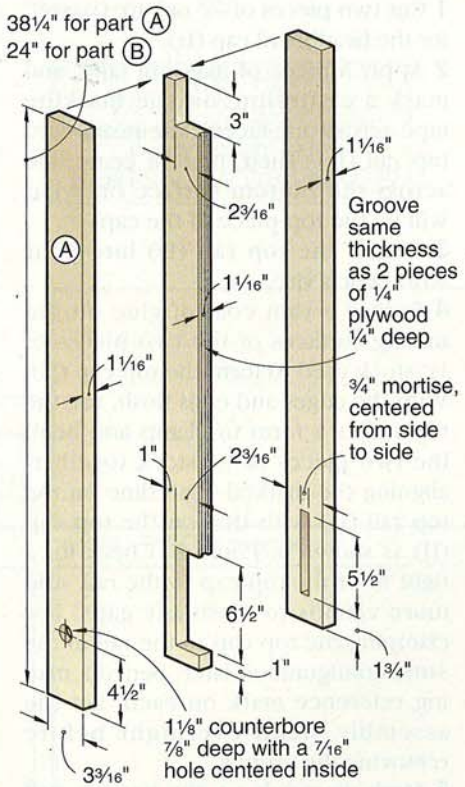
7 As shown in *Photo A*, spread an even coat of glue on both surfaces of the *middle* piece of each leg assembly. *With the edges and ends flush,* glue and clamp the pieces face-to-face to form each headboard leg (A) and each footboard leg (B). Wipe off excess glue with a damp cloth, and remove any glue from the notches and mortises. Double-check that the pieces didn't move out of alignment when clamping. Keeping the edges and ends flush is critical.

8 Remove the clamps, and sand the legs smooth. (We lightly sanded both ends of each leg on our disc sander to ensure flushness.)

9 Rout 1/2" round-overs along all edges (not ends) of each leg.

Continued

HEADBOARD/FOOTBOARD LEGS



Add the solid-oak rails and stiles next

1 Cut the headboard and footboard bottom rails (C), headboard top rail (D), footboard top rail (E), headboard stile (F), and the footboard stile (G) to the sizes listed in the Bill of Materials.

2 Using the same setup used to cut the grooves in the legs, cut grooves in the rails (C, D, E) and stiles (F, G) to fit the plywood panels (J, K) later. See the Exploded View, Headboard, and Parts View drawings for groove locations. The Parts View drawing is on the *WOOD PATTERNS®* insert in the center of the magazine.

3 Using the Parts View drawing for reference, mark the arch along the bottom edge of the footboard bottom rail (C) and along the top edge of the headboard top rail (D). Bandsaw along the outside of each marked line, then sand to the line.

4 Cut shoulders across the ends of each stile (F, G) to form a tenon to fit into the grooves in the top and bottom rails. See the Tenon detail on the Parts View for reference.

5 Rout ⅛" round-overs on the pieces (C–G) where shown on the drawings.

Cap off the headboard and footboard with style

1 Cut two pieces of ½" oak to 4³⁄₁₆×68" for the headboard cap (H).

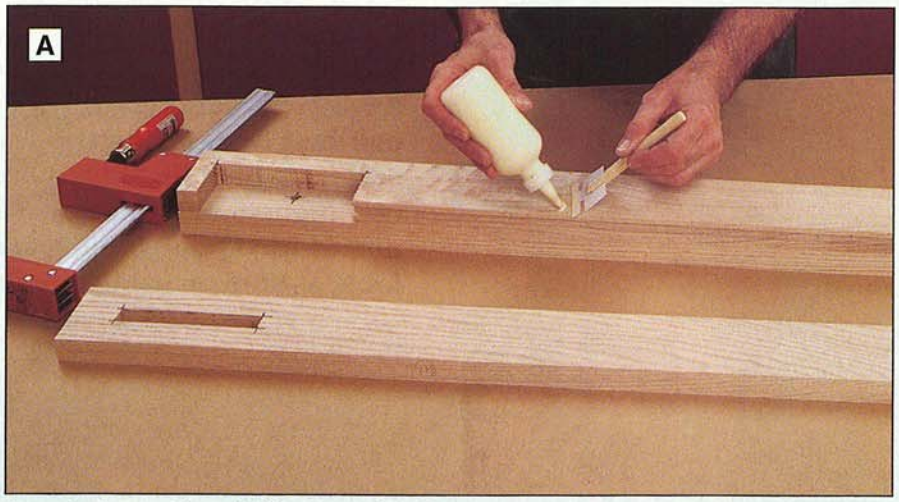
2 Apply a piece of masking tape, and mark a centerline on the masking tape across one face of the headboard top rail (D). Then, mark a centerline across the bottom surface on what will be the top piece of the cap.

3 Clamp the top rail (D) into your workbench vise.

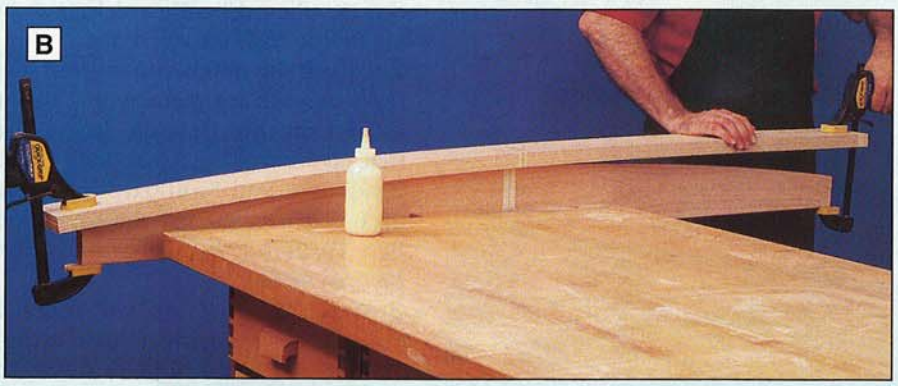
4 Spread a thin coat of glue on the mating surfaces of the two pieces of ½" stock used to form the top cap (H). With the edges and ends flush, use the top rail as a form to clamp and bend the two pieces of ½" stock together, aligning the marked centerline on the top rail (D) with that on the top cap (H) as shown in *Photo B*. Check for a tight fit of the top cap to the rail. Add more clamps to close any gaps. For clamping the top cap to the rail in the same configuration later, pencil a mating reference mark on each. Let the assembly stand overnight before removing the clamps.

5 Mark diagonals on the bottom end of each leg to find the center. Then,

Continued



Spread glue on the middle piece of each leg assembly. Then, glue and clamp the three pieces together to form each leg.



Use the arched headboard top rail as a form to laminate two ½" pieces of stock against it to form the curved 1"-thick headboard top cap.

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A hb. leg	3³⁄₁₆"	3³⁄₁₆"	38¼"	LO	2
B fb. leg	3³⁄₁₆"	3³⁄₁₆"	24"	LO	2
C btm. rails	1¹⁄₁₆"	6½"	63⅜"	O	2
D hb. top rail	1¹⁄₁₆"	4¾"	63⅜"	O	1
E fb. top rail	1¹⁄₁₆"	3"	63⅜"	O	1
F hb. stile	¾"	3"	28¼"	O	1
G fb. stile	¾"	3"	14"	O	1
H* hb. cap	1"	4³⁄₁₆"	67¾"	LO	1
I fb. cap	1¹⁄₁₆"	4³⁄₁₆"	67½"	O	1
J* hb. panels	½"	28½"	28³⁄₁₆"	LOP	2
K* fb. panels	½"	28½"	13¹⁵⁄₁₆"	LOP	2

Part	Finished Size T	W	L	Matl.	Qty.
L side rails	1¹⁄₁₆"	6"	81¾"	O	2
M cleats	¾"	¾"	80"	O	2
N platform panels	¾"	40"	61¼"	BP	2
O support	¾"	4"	6½"	O	1
P brace	¾"	3"	12"	O	1
Q feet	3½" dia.		5"	LO	4

* Cut parts marked with an * oversize. Trim to finished size according to the how-to instructions.

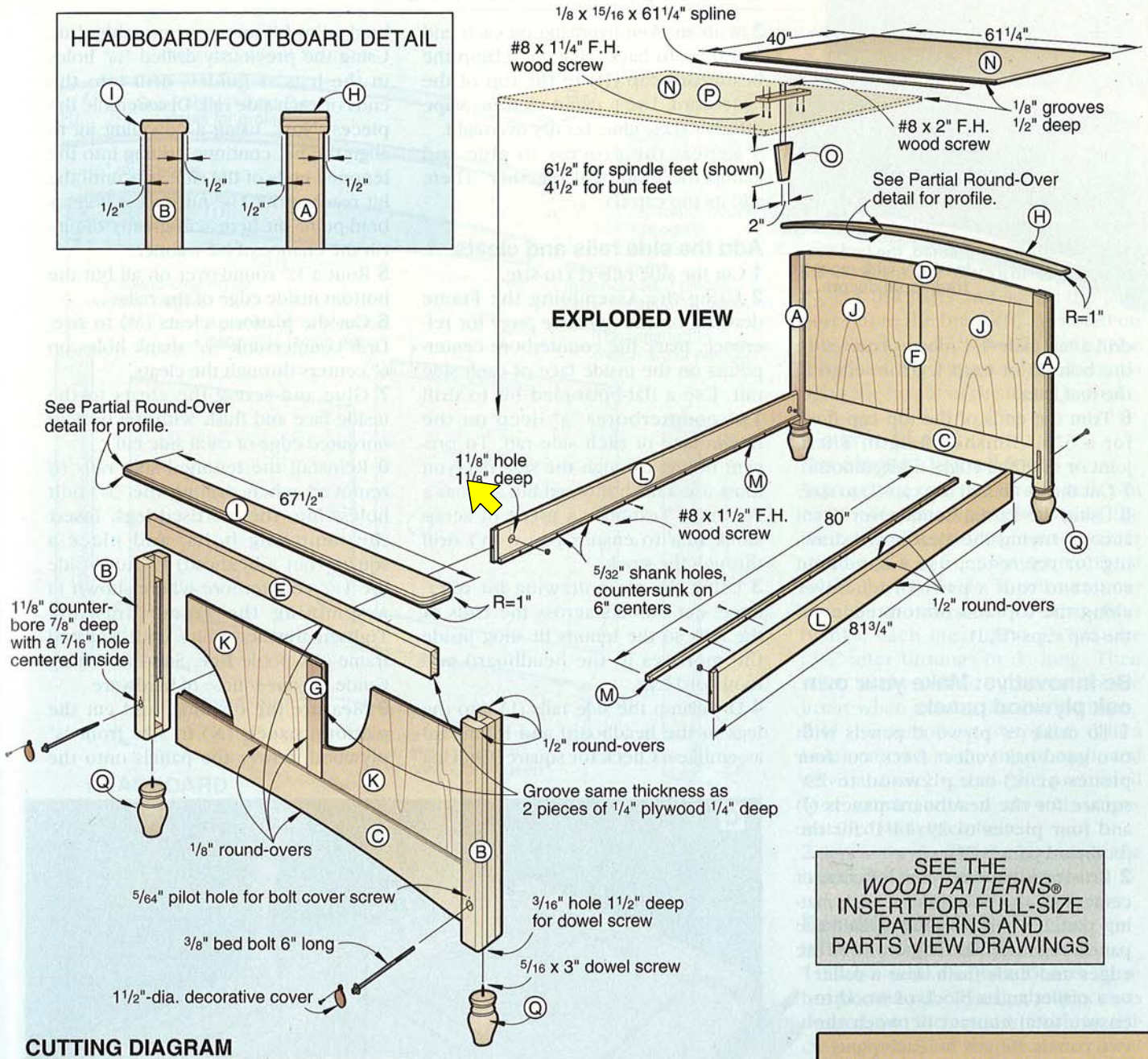
Materials Key: LO–laminated oak, LOP–laminated oak plywood, O–oak, BP–birch plywood.

Supplies: #8×1¼", #8×1½", and #8×2" flathead wood screws; stain, clear finish.

Buying Guide

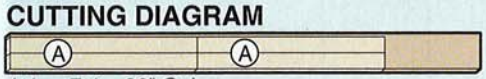
Hardware. 4–6" bed bolts, catalog no. 99277. Bed bolt wrench, catalog no. 18615, 4–bed bolt covers (with screws), catalog no. 99235. For current prices, contact Rockler Woodworking and Hardware, 4365 Willow Drive, Medina, MN 55340. Or call 800/279-4441 to order.

Turned feet. Country version, four 3½" diameter by 5"-long oak bun feet, catalog #A0557DS5. For the traditional version, use four 5" diameter by 3"-long oak beaded bun feet, catalog #A0551DS. For current prices write Adams Wood Products, 974 Forest Drive, Morristown, TN 37814. Or call 423/587-2942 to order.

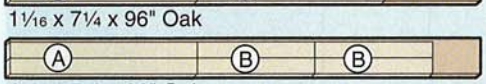


SEE THE *WOOD PATTERNS®* INSERT FOR FULL-SIZE PATTERNS AND PARTS VIEW DRAWINGS

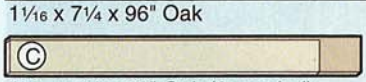
CUTTING DIAGRAM



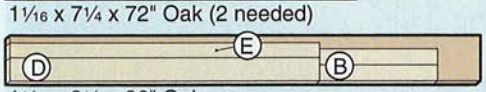
1 1/16 x 7 1/4 x 96" Oak



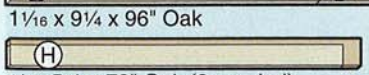
1 1/16 x 7 1/4 x 96" Oak



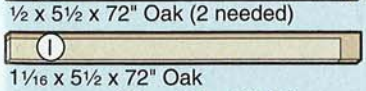
1 1/16 x 7 1/4 x 72" Oak (2 needed)



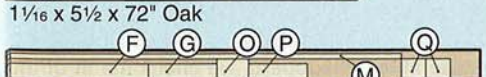
1 1/16 x 9 1/4 x 96" Oak



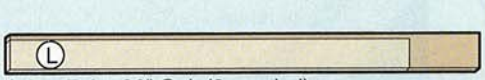
1/2 x 5 1/2 x 72" Oak (2 needed)



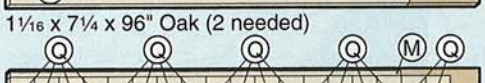
1 1/16 x 5 1/2 x 72" Oak



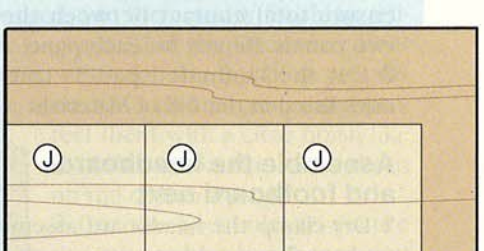
3/4 x 5 1/2 x 96" Oak



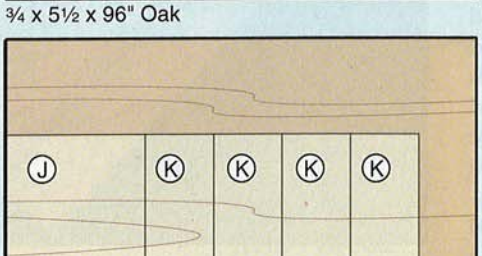
1 1/16 x 7 1/4 x 96" Oak (2 needed)



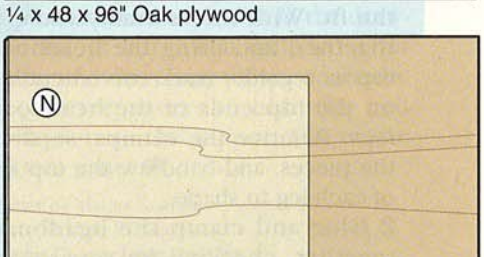
3/4 x 5 1/2 x 96" Oak



1/4 x 48 x 96" Oak plywood



1/4 x 48 x 96" Oak plywood



3/4 x 48 x 96" Birch plywood (2 needed)

Stained, the bed fits in nicely with most traditional decors.

drill a 3/16" hole 1½" deep centered in the bottom of each leg for securing the feet later.

6 Trim the ends of the top cap flush for a 67¾" finished length. Then, joint or sand the edges until smooth.

7 Cut the footboard top cap (I) to size.

8 Using the Partial Round-Over detail accompanying the Headboard drawing for reference, use a hand-held router to rout a partial round-over along the top and bottom edges of the top caps (H, I).

Be innovative: Make your own oak plywood panels

1 To make ½" plywood panels with two good oak veneer faces, cut four pieces of ¼" oak plywood to 29" square for the headboard panels (J) and four pieces to 29×14½" for the footboard panels (K).

2 Brush on an even coat of contact cement on the poor side of each mating panel. Then, carefully place the panels together face-to-face, with the edges and ends flush. Use a roller or a mallet and a block of wood to ensure total contact between the two panels. Repeat for each panel.

3 Cut the laminated panels to the sizes listed in the Bill of Materials.

Assemble the headboard and footboard next

1 Dry-clamp the headboard assembly (except the curved top cap) to check the fit. With the assembly clamped together, and using the headboard cap as a guide, mark curved cutlines on the top ends of the headboard legs. Remove the clamps, separate the pieces, and bandsaw the top end of each leg to shape.

2 Glue and clamp the headboard together, checking for square. See *Photo C* for reference.

3 With an even overhang on each end and front to back, glue and clamp the headboard cap (H) to the top of the headboard. Use a damp cloth to wipe off any excess glue. Let dry overnight.

4 Repeat the process to glue and clamp the footboard together. Then, add its top cap (I).

Add the side rails and cleats

1 Cut the side rails (L) to size.

2 Using the Assembling the Frame drawing on the *opposite page* for reference, mark the counterbore centerpoints on the inside face of each side rail. Use a flat-bottomed bit to drill 1⅛" counterbores ⅞" deep on the *inside* face of each side rail. To prevent boring through the side rail, you must use a flat-bottomed bit, such as a Forstner. Test-bore a piece of scrap stock first to ensure you won't drill through the stock.

3 Using the same drawing for reference, cut rabbets across the ends of the rails so the tenons fit snug inside the mortises in the headboard and footboard legs.

4 Dry-clamp the side rails (L) into the legs in the headboard and footboard assemblies. Check for square. Chuck a brad-point bit into your portable drill. Using the previously drilled 7/16" holes in the legs as guides, drill into the ends of each side rail. Disassemble the pieces. Now, using a doweling jig to align the bit, continue drilling into the tenoned ends of the side rails until the bit reaches the 1⅛" nut-access hole. A brad-point bit here will greatly diminish the chance of bit wander.

5 Rout a ½" round-over on all but the bottom inside edge of the rails.

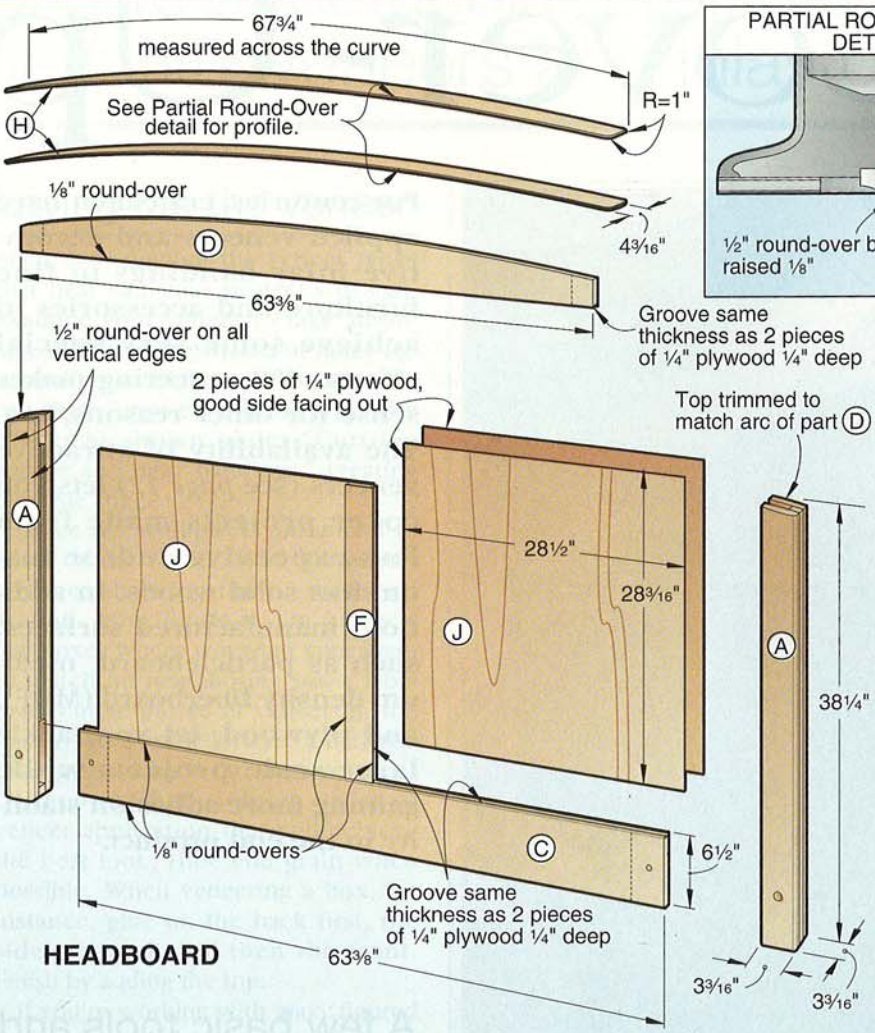
6 Cut the platform cleats (M) to size. Drill countersunk 5/32" shank holes on 6" centers through the cleats.

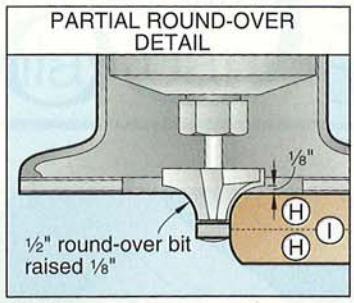
7 Glue and screw the cleats to the inside face and flush with the bottom unrouted edge of each side rail.

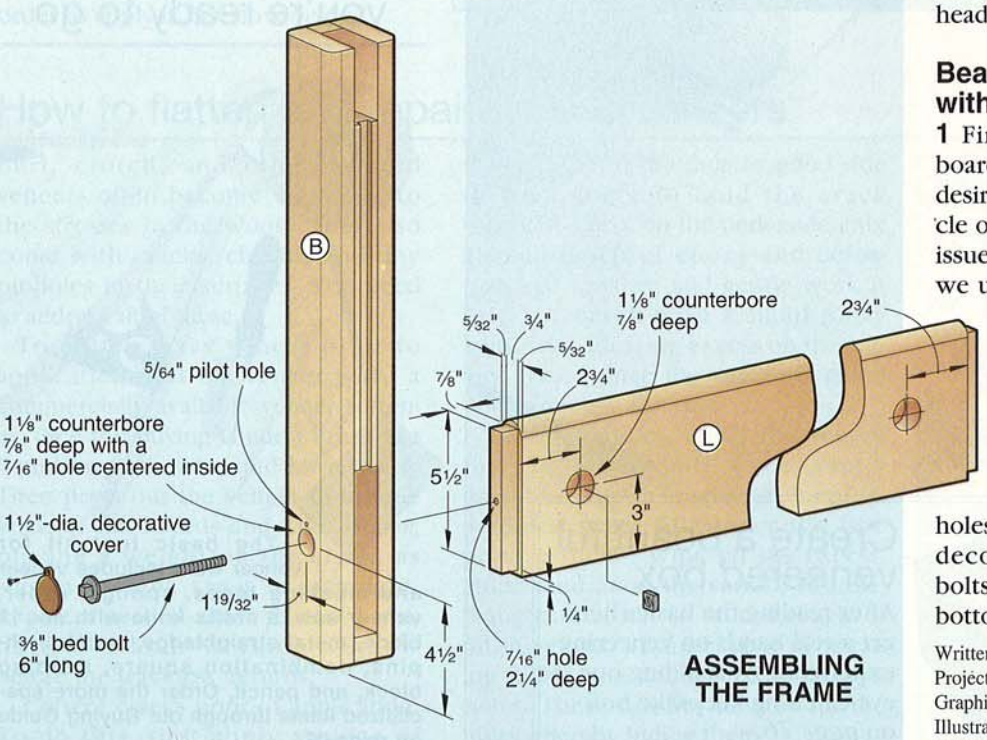
8 Reinstall the tenoned side rails (if removed when drilling the 7/16" bolt holes) into the mortised legs. Insert the mounting bolts, and place a square (not a hexhead) ½" nut inside the 1⅛" counterbore where shown in Assembling the Frame drawing. Tighten the bed bolts until the bed frame is wobble free. See the Buying Guide for our source of hardware.

9 Measure the opening, and cut the platform panels (N) to size from ¾" plywood. Lower the panels onto the

As shown in this bird's-eye view of the dry-assembled headboard, we check the fit of the pieces before gluing and clamping them together.







cleats to check the fit. They should fit without scraping the bottom rails (C). Then rout a ⅛" groove ½" deep along the mating edge of each panel. From ⅛" hardboard, cut a spline to join the two panels, but *do not* glue it in place.

10 To form the platform support (O, P), cut the parts and screw the support (O) to the brace (P). As noted on the Exploded View drawing, the length of the support (O) depends upon the height of the feet (Q) used.

It's time to add the elegant turned feet

1 To get the feet (Q) for the bed, you can either turn your own using the pattern on the pattern insert or order preturned feet from the source listed in the Buying Guide. If you turn your own, laminate stock to form four blanks, each measuring 4½" square (3½" after turning) by 5" long. Then refer to the full-size pattern on the insert when turning the feet to shape.

2 If you turn your own feet, drill a hole centered in the top of each, and drive a dowel screw (the preturned feet come with a dowel screw installed) into each hole.

3 Screw the feet to the bottom of the headboard and footboard legs.

Beautify your bed with the right finish

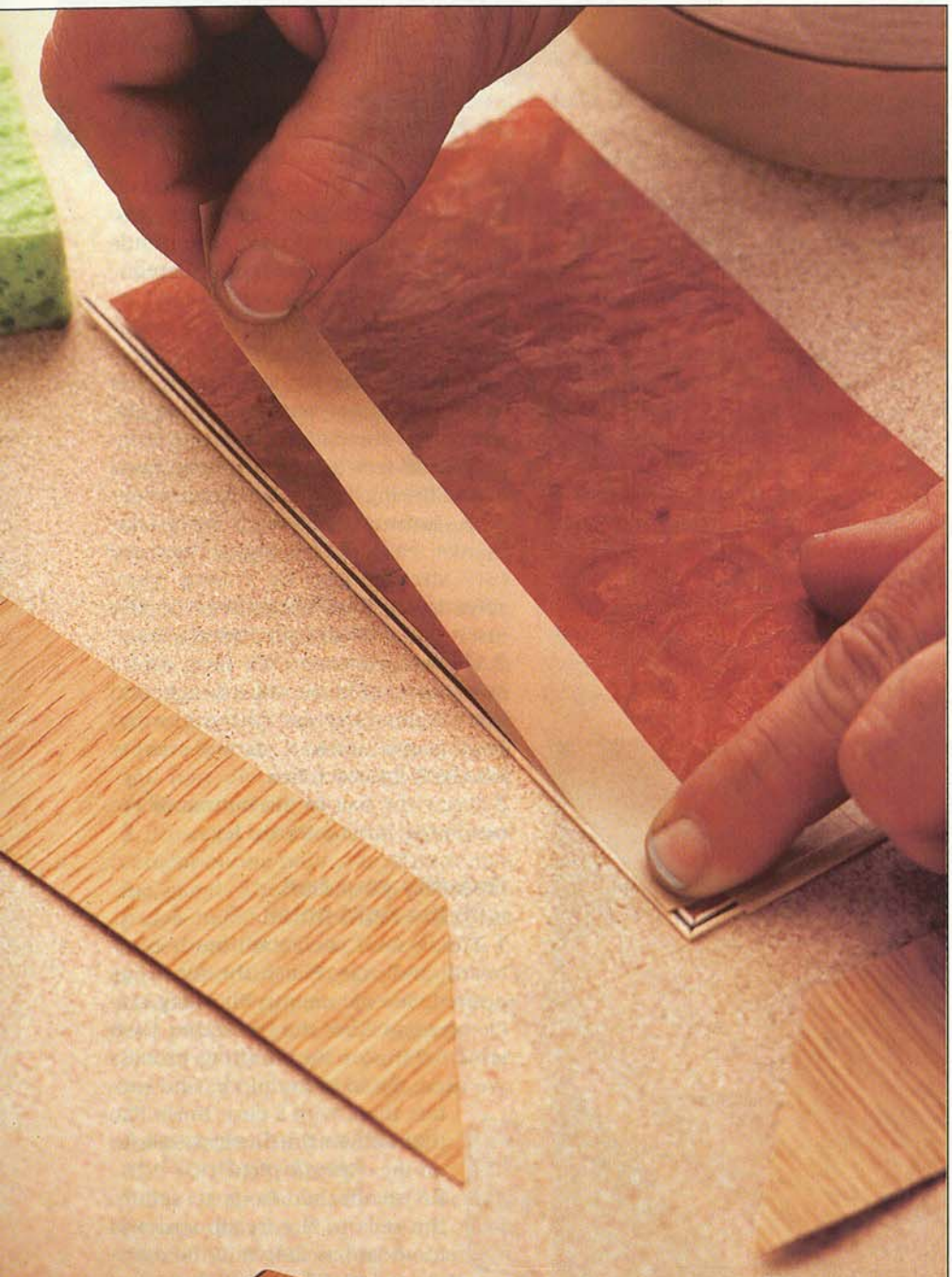
1 Finish-sand the headboard, footboard, and rails. Finish the pieces as desired. See the country finishing article on *page 72* of the December 1998 issue, #110, for the finishing process we used. Or stain the pieces and protect them with a clear finish like that shown on the inset photo on the *opposite page*.

2 Use the bed bolts to secure the rails to the headboard and footboard as shown in the drawing at *left*. Then drill 5/64" pilot holes, and drive screws to secure the decorative covers to hide the bed bolts. Secure the support (O) to the bottom panel.

Written by Marlen Kemmet
Project Design: Jeff Hayes
Graphic Design: Jamie Downing
Illustrations: Roxanne LeMoine; Lorna Johnson
Photographs: Baldwin Studio; Hetherington Studio

The Great Cover-Up

For centuries, craftsmen have applied veneers and decorative inlay bandings to fine furniture and accessories to achieve some very special effects. Yet veneering makes sense for other reasons, too. The availability of attractive veneers (see *page 12*) lets you cover projects made from less-expensive and/or featureless solid woods. In addition, manufactured surfaces, such as particleboard, medium-density fiberboard (MDF), and plywood, let you tackle large-scale projects while gaining more adhesion stability in the end product.



Create a beautiful veneered box

After reading the basics here, get a real hands-on veneering experience by building our eye-catching keepsake box on *page 76*.

A few basic tools and you're ready to go

The basic tool kit for veneer work includes veneer and masking tapes, sponge, roller, veneer saw, a crafts knife with no. 11 blade, metal straightedge, metal pushpins, combination square, sanding block, and pencil. Order the more specialized items through our Buying Guide on *page 75*.

Create spectacular projects with beautiful veneers and inlay bandings.

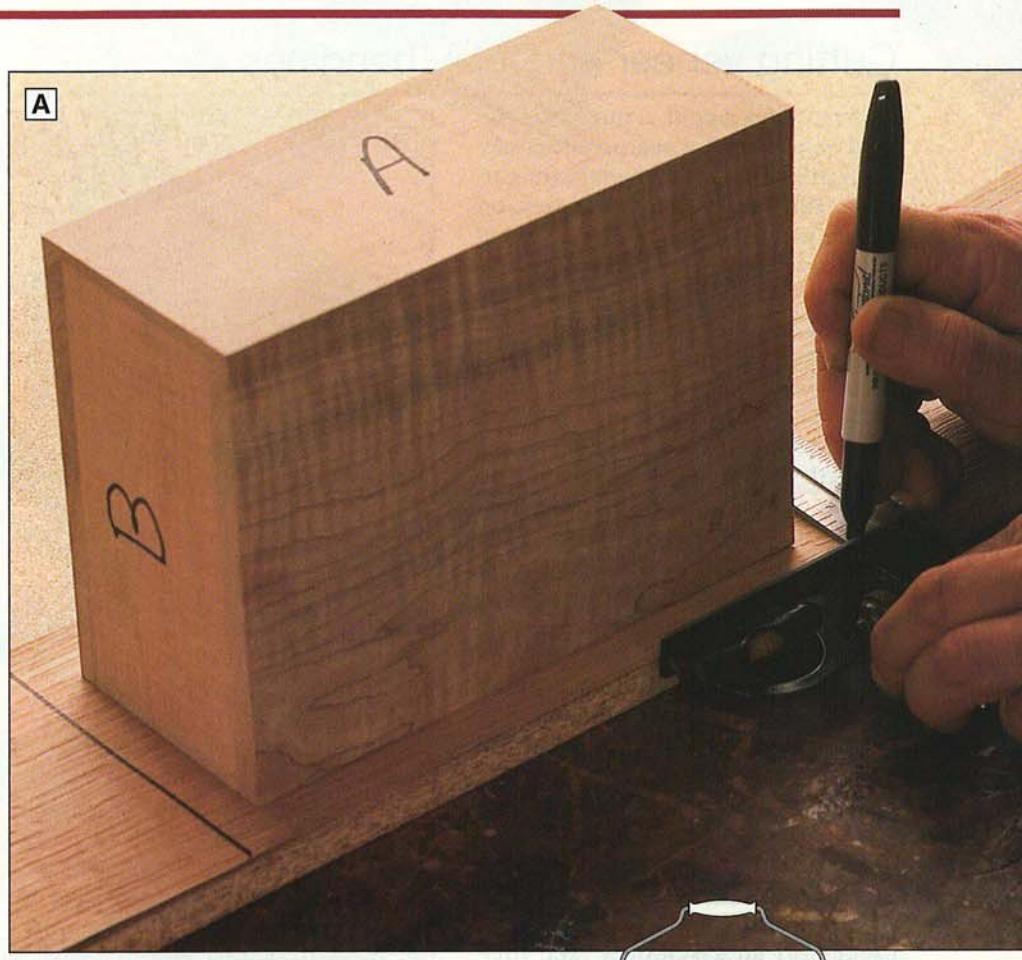
Laying out the veneer

Begin by selecting the veneer types that best suit your project's design. Examine your veneer to take advantage of the grain patterns or fancy figure and to avoid flaws. If you're working with uneven edges, trim the pieces as shown under "Cuttiing veneer and inlay bandings," creating one true edge.

Place the workpiece you intend to cover on the veneer. Mark the veneer cutline, allowing for ¼" waste all around, as in *Photo A*. On projects like boxes where you want your grain to match on neighboring sides, label consecutive pieces of veneer on the inside faces with letters. Label the mating box sides at the same time.

Keep in mind, too, an order of veneer application that will achieve the best look. Hide end grain when possible. When veneering a box, for instance, glue on the back first, the sides second, and then the front. Finish by adding the top.

If you're working with wavy figured veneer, you'll have to flatten it in order to apply it. See how *below*.



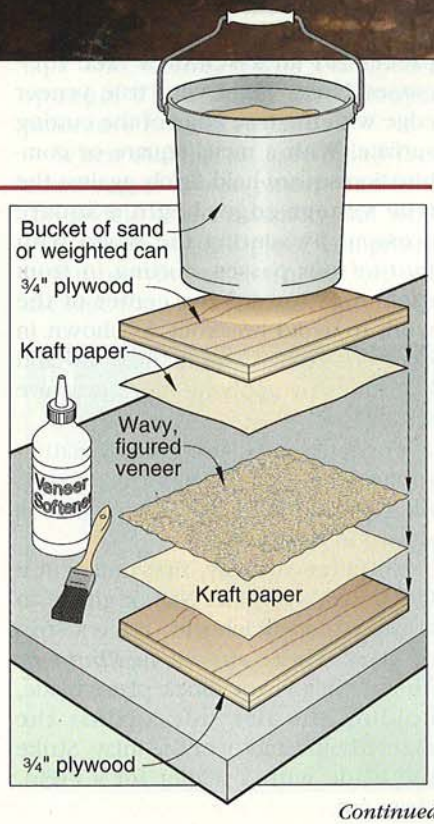
How to flatten and repair figured veneers

Burl, crotch, and other figured veneers often become wavy due to the stresses in the wood. They also come with cracks, checks, and tiny pinholes in their surfaces. You need to address all of these.

To flatten wavy veneer prior to application, wet the veneer with a commercially available veneer softener. (See the Buying Guide.) Brush the liquid on both sides and let it stand. Then press out the veneer in a sandwich of flat boards and kraft paper, placing a weight on the stack, as shown at *right*. Let it sit overnight. Repeat if needed. Once flattened, you have a 48-hour working window before the waviness returns.

Correct cracks prior to application. To do this, first apply a piece of veneer tape to the face or good side of the veneer to hold the crack together. Then, on the underside, mix a small batch of epoxy and color-matched sawdust and gently work it into the crack with a small putty knife. Avoid leaving excess on the surface. Later, once the veneer is glued down, remove the tape.

To fix pinholes, apply the veneer first. Then (and only if you want a glasslike finish), spread a color-matched paste filler over the fine pores or holes. Wipe off the excess. Finish-sand away the surface residue, being careful not to sand through. If finishing with a Danish oil or penetrating finish, you don't need to fix pinholes. These finishes tend to fill the holes, thereby hiding them.



Continued

Cutting veneer and inlay bandings

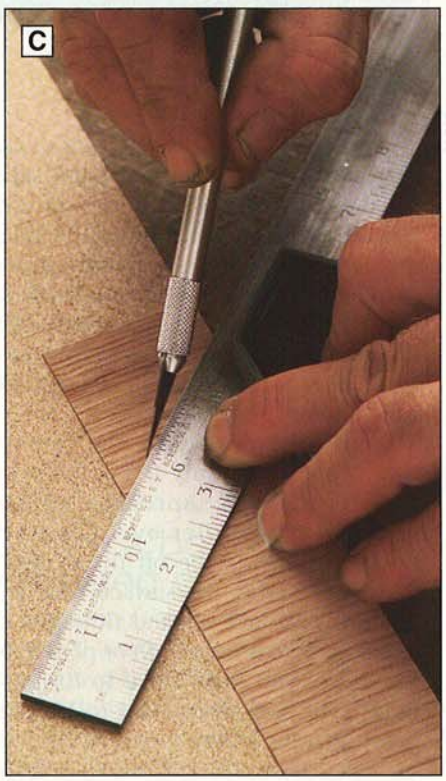
Crosscut and ripcut standard or figured veneer with a sharp veneer saw or crafts knife and a metal straightedge. The veneer saw works best on denser woods.

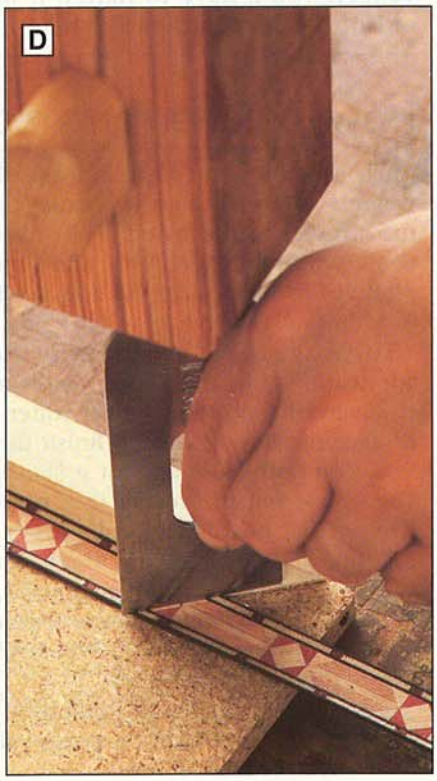
Make your cuts on a flat, firm surface, such as particleboard. Start by ripcutting one true or straight edge on your veneer piece. When ripcutting, score and cut from one veneer end to the other, following a straightedge. Make two to four scoring passes as needed to establish a straight line before cutting. If you use the saw, score with just the front corner of the blade. Make final cutting passes by pulling the saw in from one end, with the teeth parallel to the work surface. With a crafts knife, simply apply more pressure on succeeding cuts, following the straightedge and score. Be careful that wayward wood grain doesn't pull you off course. If using a crafts knife, change blades often. Dull blades cause mistakes.

Now you are ready to crosscut square corners, something that's particularly important when cutting pieces for an assembled face (discussed later). Align your true veneer edge with the true edge of the cutting surface. With a metal square or combination square held firmly against the true veneer edge, begin a square crosscut by scoring the wood with two to four passes, cutting in from each edge toward the center of the work to avoid breakout, as shown in *Photo B*. Similarly, make final saw and knife cuts by applying more pressure on the tool.

For miter-cuts, use a combination square, scoring toward the center, then cutting with added pressure, as shown in *Photo C*.

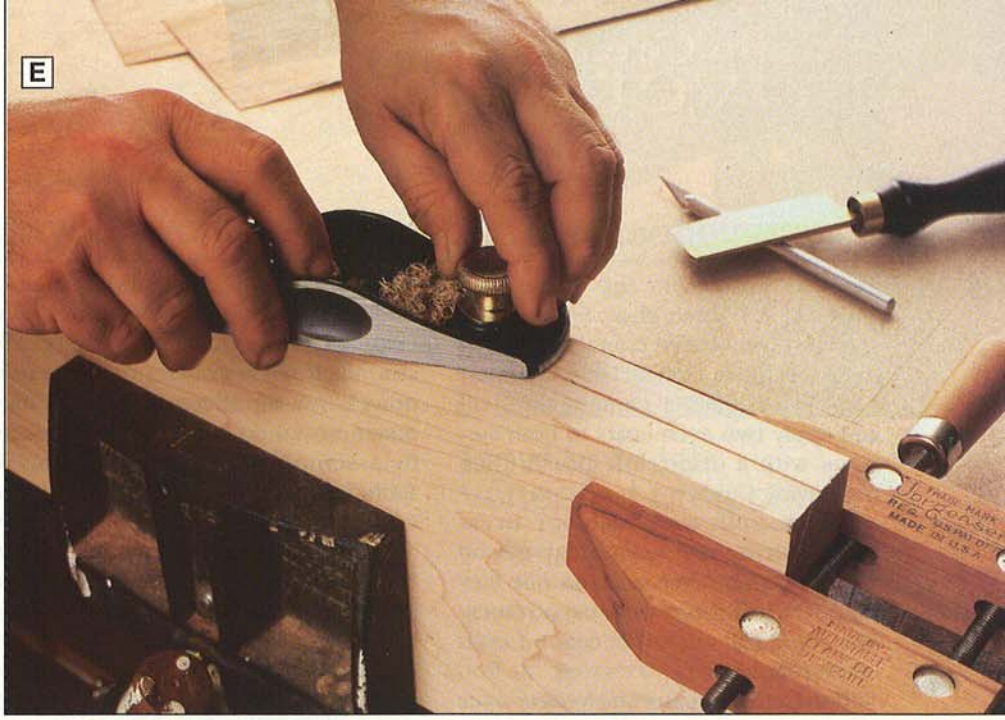
To miter-cut inlay, first miter-cut a length of ¾×¾" pine. Nail or glue it to a piece of particleboard. Place a strip of inlay where shown in *Photo D*. Then take a sharp block plane blade, holding the flat side against the mitered pine and over the inlay. Strike the blade with a mallet for a crisp, clean cut.





Jointing edges for perfect seams

Many times your veneering project calls for joining pieces edge to edge. To do this, sandwich mating veneers tightly between two edge-jointed boards, allowing less than 1/32" of the veneers to stand proud of the board edges (*Photo E*). Clamp where needed to prevent movement along the exposed veneer edges. Now, sand or block-plane the edges carefully without bending them over. Make several passes, removing the exposed veneer until flush with the board edges.

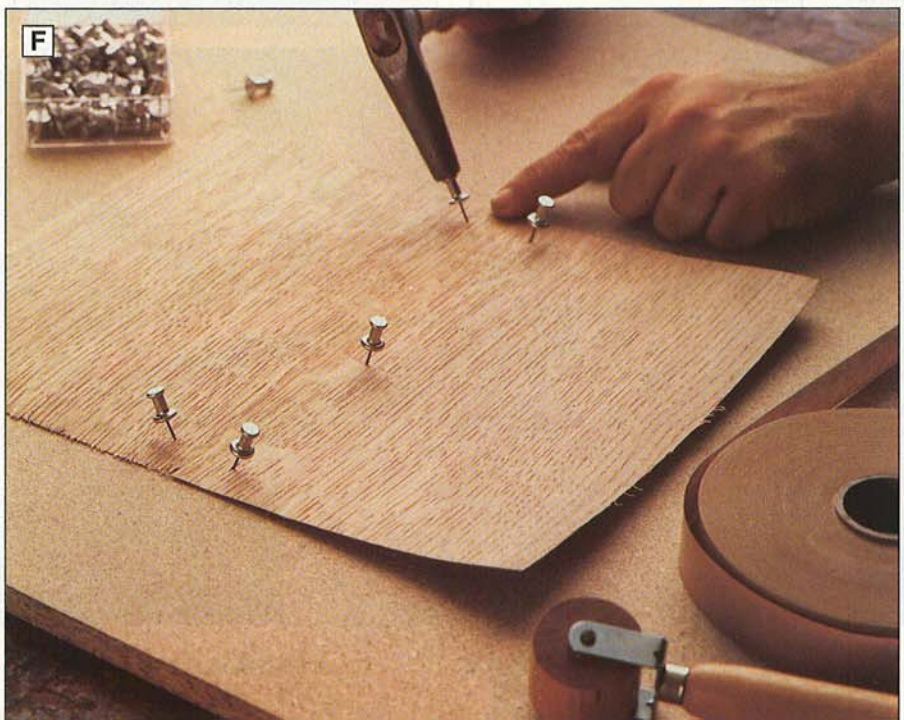


Joining like veneers to make bigger pieces

To join veneers edge to edge, lay the pieces good-side-up on a flat surface. Check that they mate well with no gaps between. Then, pin one piece down, pressing pushpins in through the veneer and into the work surface, angling them away from the joint. Locate the pins ½" from the mating edge, spaced 4–9" apart, depending on the length of the pieces. Be careful not to split the wood. Place the joining piece snugly against the pinned piece, and pin it down, as shown in *Photo F*.

After taping these pieces together (see "Taping veneers together"), flip them over and apply a thin bead of yellow woodworker's glue on the underside seam for added strength.

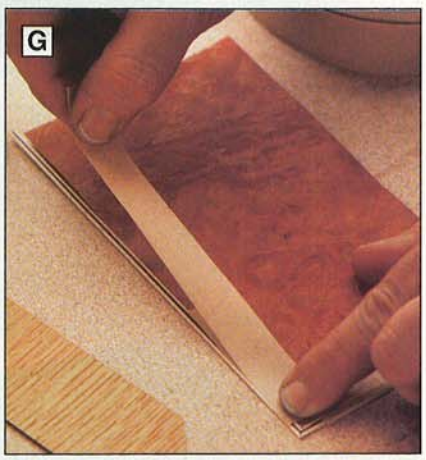
Keep in mind that you should not use flexible veneer (which has a wood veneer thickness of 1/64") for any inlay work or assembled faces. Otherwise you risk sanding through when sanding inlays flush to the surrounding surface. Apply tape to the good side, removing later once the piece is glued in place.



Taping veneers together

Once you have dry-fitted your pieces, you're ready to tape them together into a bigger sheet or an assembled decorative face. To do this, start with two joining pieces—figured veneer, inlay, standard veneer, it doesn't matter. Spot-tape the veneer or inlays together, checking alignment and snugness. Use water-activated veneer tape here, wetting it with a dampened sponge. Then apply a full-length piece, as shown in *Photo G*.

When making an assembled face consisting of several pieces, start from the middle of the assembly and work out, taping up one piece completely before moving to the next. Roll out the tape for a good bond.



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Gluing veneer to a substrate

Select a glue from the Veneering Glues At A Glance chart *below*. (We used a solvent-based contact cement.) If using contact cement, thin it 20 percent (with contact cement thinner) and apply two even coats to both surfaces with a disposable brush. (See the Buying Guide.)

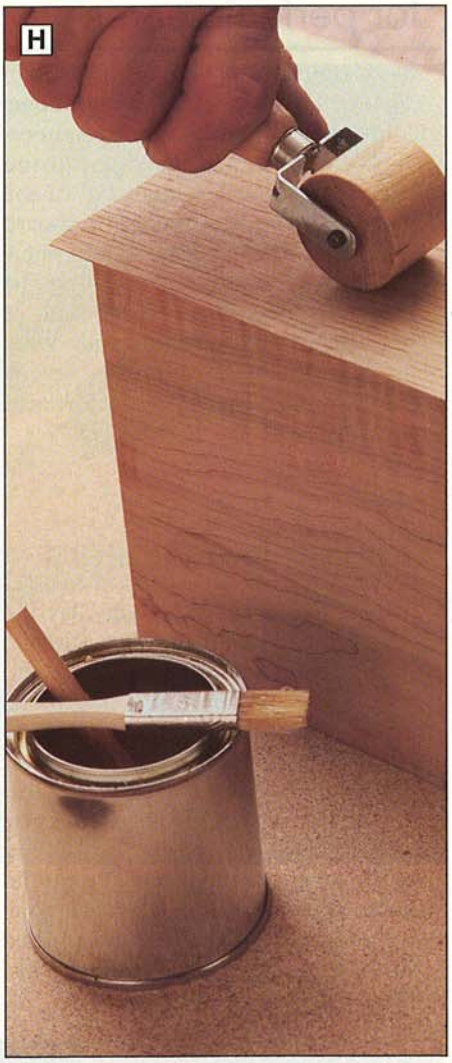
With yellow, white, or urea-formaldehyde glues, you may get by with one thin, even coat on one surface. Or, on more porous surfaces, you could roll out a thin coat on each mating surface.

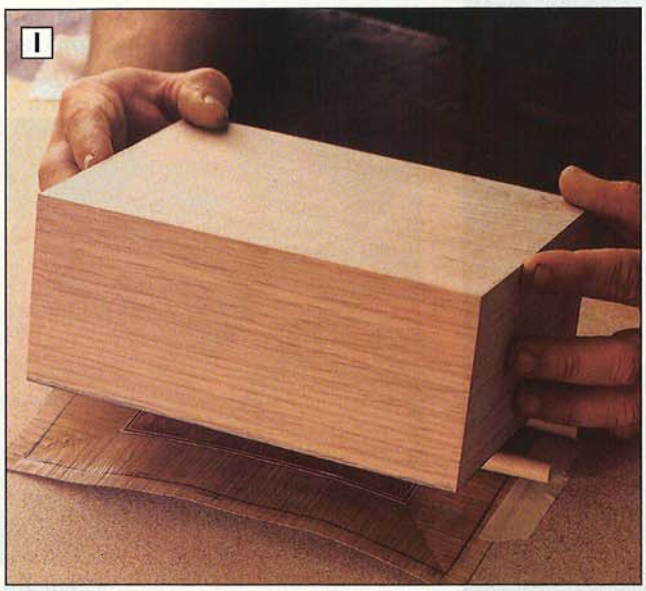
Then, either center the veneer over the substrate material, or vice versa—which ever is easier—and carefully press the veneer in place. With an assembled face where precision centering is a must, first mark positioning lines on the mating side of the veneer, as shown in *Photo I*. Work from one end, allowing for even waste all around. If using contact cement, use dowels or a slip sheet (kraft paper, for instance) while applying the veneer or assembled face. (See *Photo J*.) Remove these as you carefully press down the veneer.

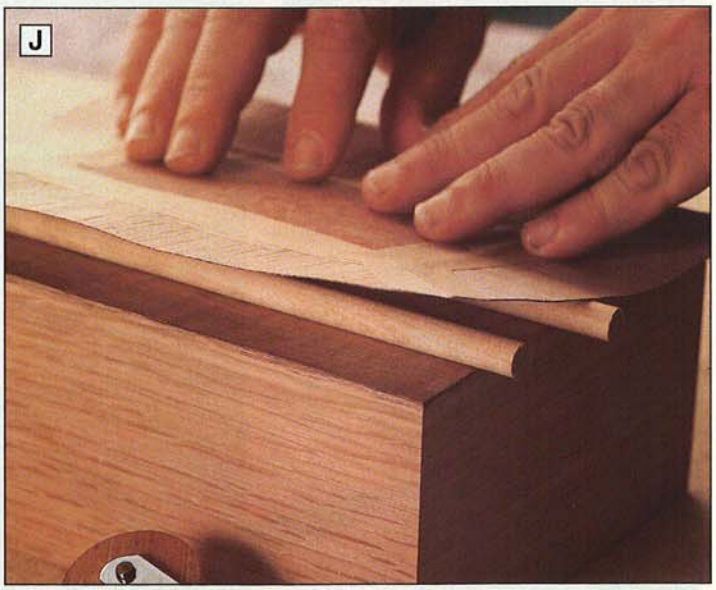
Once the veneer is in place, roll it out, starting from the center, as shown in *Photo H*. If using other than contact cement, apply uniform clamping pressure across the entire veneer surface. To do this, apply 2-mil plastic, then a flat piece of particleboard over the glued veneer using as many clamps and weights as needed. The plastic prevents any glue squeezeout from bonding to the particleboard.

VENEERING GLUES AT A GLANCE

GLUE TYPE	APPLICATIONS	PROS/CONS
WHITE (POLYVINYL RESIN)	Close-grained woods (maple, cherry, etc.); ideally suited for large projects requiring more open time.	Long open time; slightly gummy, doesn't sand as well as yellow glue; weighting or clamping overnight necessary. Bubbles resulting from poor contact can be heated and pressed into place.
YELLOW WOODWORKER'S GLUE (ALIPHATIC RESIN)	Close-grained woods; works best for medium and small projects; could penetrate pinholes and pores of figured veneers.	Short open time (5–10 minutes), and early tack; less time than white glue to move veneers into place; uniform clamping required for at least 2 hours.
CONTACT CEMENT (SOLVENT-BASED ONLY)	Best used for paperback (flexible) veneers or small projects; avoid on large projects with highly figured woods due to control problems and potential for uneven bonding.	Sets on contact; eliminates presses and clamps; slight chance of delamination on highly figured woods; slip sheet required during application while positioning veneer.
UREA-FORMALDEHYDE RESIN	Best all-around glue for applying veneer (standard and paperback) on any surface (particleboard, stable solid wood, etc.)	Doesn't bleed through or allow veneers to creep; must mix by weight; weighting and clamping required.







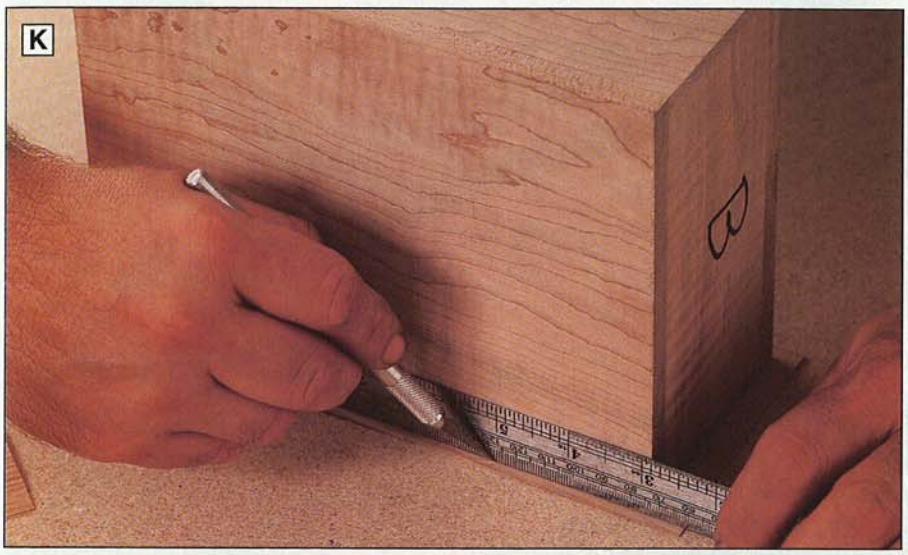
Trimming and cleaning up your work

Holding a metal straightedge along your workpiece and using a crafts knife, trim off the excess prior to adding a neighboring piece. (See *Photo K.*) Score and cut as described earlier. Block-sand the remaining fine edge flush.

To remove veneer tape on assemblies, allow the glue to set up overnight. Then, moisten 1-2" of the tape at a time to reactivate the adhesive. Next, carefully lift up the moistened tape with a thin, rounded craftsknife or putty knife blade. (See *Photo L.*) Avoid making scratches.

Finally, with the tape removed and edges block-sanded flush and slightly eased, finish-sand the veneered surfaces using a sanding block or finish sander, as shown in *Photo M.* Be careful not to sand through. Move from 180- through 220-grit.

On assembled faces, start sanding the outside edges, moving steadily toward the center. Be aware that inlay typically stands proud of adjoining veneer surfaces so you will need to sand it flush. Remove any sanding dust with a clean cloth or vacuum and you're ready for finishing.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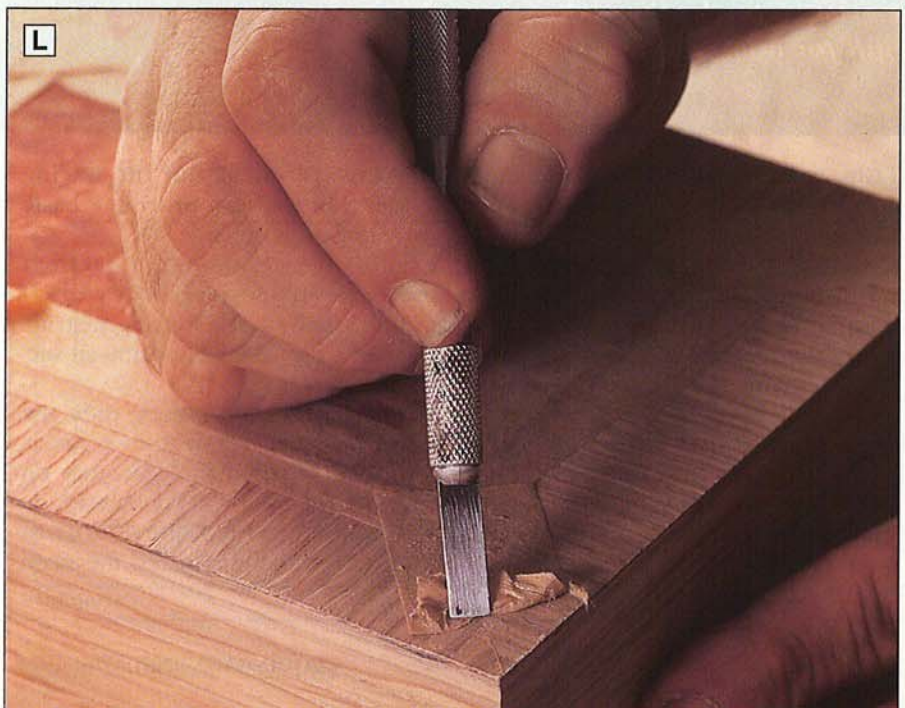
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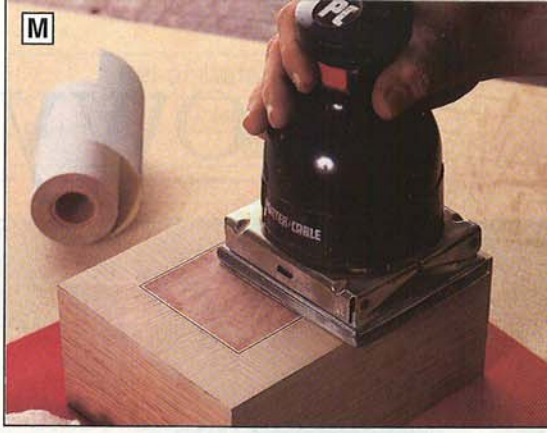

M

How to finish veneered projects

Because glues take time to fully cure, wait at least 72 hours before finishing veneered projects. Oil-based clear finishes, such as polyurethane, work best on veneered projects. However, avoid using lacquer on veneer bonded with contact cement—it reacts with this glue, causing it to loosen.

Buying Guide

Veneer Catalog. Constantine's Woodworker's Catalog, 2050 Eastchester Rd., Bronx, NY 10461, or call 800/223-8087.

Veneer Softener. 1 quart, $11.50 plus shipping. Catalog no. CPA20. Address and telephone no. above.

Contact Cement Thinner. 1 pint, $7.75 plus shipping. Catalog no. GT1P. Address and telephone no. above.

Specialized veneering tools and materials. Kit no. WDVK2. Kit includes veneer tape, no. 12VTP1; roller, no. 12RR2; veneer saw, no.VS277; crafts knife with 5 blades, no. 98CK1B; 1 box veneer metal pushpins (100 per box), no. CVP100. $27.95, postpaid. Address and telephone no. above.

Many thanks to our technical consultant Sal Marino *left*, a woodworking teacher, writer, and adviser.

Written by Jim Harrold
Technical Consultant: Sal Marino
Photographs: John Kane
Illustration: Kim Downing

Showy Keepsake Box

This little beauty features quarter-sawn oak veneered sides and a veneered face made up of madrone burl with a surround of inlay and oak. This project is a great introduction into veneering, and makes a pleasing gift for a loved one.

Note: *Before you undertake this handsome project, read the article on* page 70 *that describes how to work with the veneers used here. For more on choosing veneers and inlays, see* page 12.

Start with the basic box

1 Cut the box front and back (A), sides (B), and top and bottom (C) to the dimensions in the Bill of Materials. (We used maple.)

2 Rout ⅜" rabbets ⅛" deep in the front and back where shown in the Box Assembly drawing.

3 Glue and clamp the front, back, and sides together, checking for square.

4 Glue and clamp on the box top and bottom (C). Remove any squeeze-out.

5 Finish-sand the box with 150-grit sandpaper in preparation for the veneers and inlay. Maintain sharp corners all around.

Jazz up your box with fancy veneers and inlays

1 Select a combination of veneers and inlay that will achieve the look you want. Or go with the ones we used. (See the Bill of Materials.) To order the veneers, check out the Buying Guide. You also can order the basic veneering tools on *page 70*.

2 Cut the veneer sides (D), and front and back (E), leaving ¼" extra all around. (Follow the cutting instructions on *page 72* for these and all succeeding cuts.)

3 Glue on the side pieces, then the front and back. (Trim the excess as described in the technique story on *page 75*.We used solvent-based contact cement, which allowed us to work faster and eliminated the need

Continued

Veneers dress it up in high style

Bill of Materials					
Part	Finished Size			Matl.	Qty.
	T	W	L		
BOX					
A front, back	3/8"	2 1/4"	8"	M	2
B sides	3/8"	2 1/4"	5 1/2"	M	2
C btm., top	3/8"	6"	8"	M	2
K handle	1/4"	1/4"	1 1/2"	E	1
VENEER AND INLAY					
*D sides	1/30"	3 1/2"	6 1/2"	OV	1
*E front, back	1/30"	3 1/2"	8 1/2"	OV	1
F top center	1/30"	3 1/4"	5 1/4"	MB	1
G top side inlay	1/28"	1/8"	3 1/2"	I	2
H top front, back inlay	1/28"	1/8"	5 1/2"	I	2
*I top, side border	1/30"	1 1/2"	6 1/2"	OV	2
J* top, front, back border	1/30"	1 1/2"	8 1/2"	OV	2

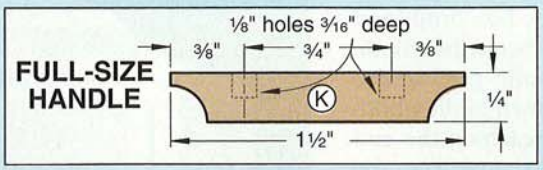
*Cut parts marked with * oversize. Trim to finished size, according to the how-to instructions.

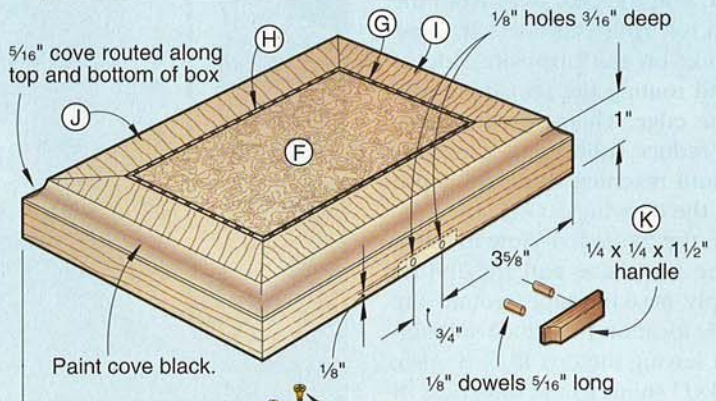
Materials Key: M–maple; OV–quartersawn oak veneer; MB-madrone burl veneer; I–inlay border; E–ebony.

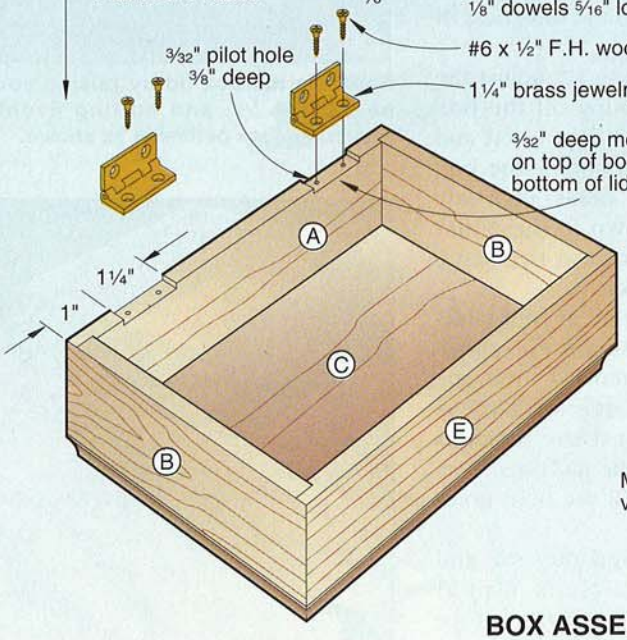
Supplies: 1/8" dowel.

Buying Guide

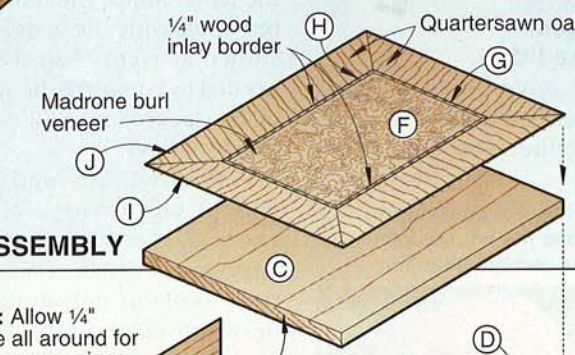
Veneered box kit. Kit includes enough oak and madrone burl veneer, inlay border, and ebony to complete one box. Also, 1 pair of jewelry-box hinges, 1 1/4", brass; 1 pint of contact cement; 1 pint of thinner for glue. Kit no. WDVK1, $39.95, ppd. Constantine's, 2050 Eastchester Rd., Bronx, NY 10461, or call 800/223-8087.



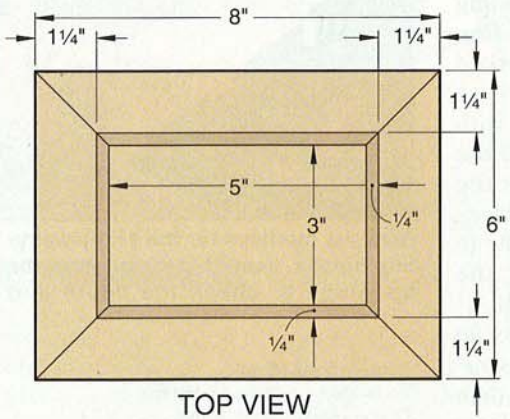




EXPLODED VIEW

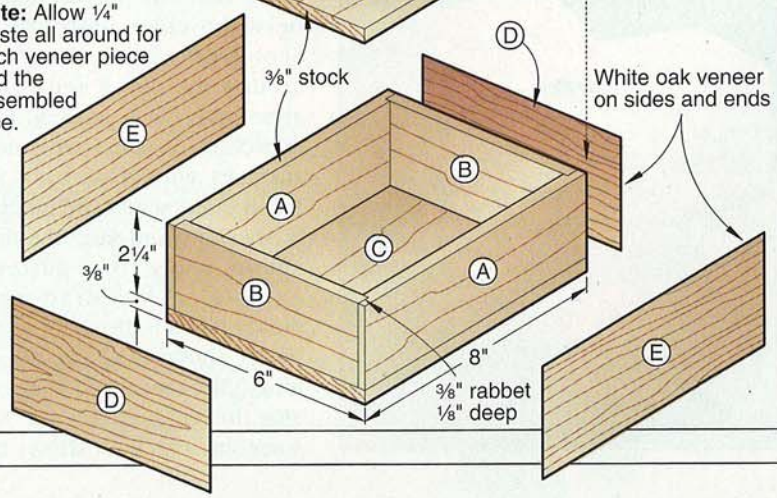


BOX ASSEMBLY



TOP VIEW

Note: Allow 1/4" waste all around for each veneer piece and the assembled face.



for clamps. Look over the glue choices in the chart in the technique story; you may want to use yellow woodworking glue, which may produce a better overall bond.)

4 Cut out the figured center piece (F), ensuring the corners are square. Then miter-cut an inlay border (G or H), taping it to the figured center as shown on *page 73*. Cut and tape the remaining inlay borders; then add the oak surround pieces (I, J) to complete the assembled face.

Once the tape dries, lay the assembled face on its taped side and dry-fit the box on top of it. (We aligned the mitered corners of the oak surround with the box corners, penciling the box outline on the face to mark exact placement of the box.)

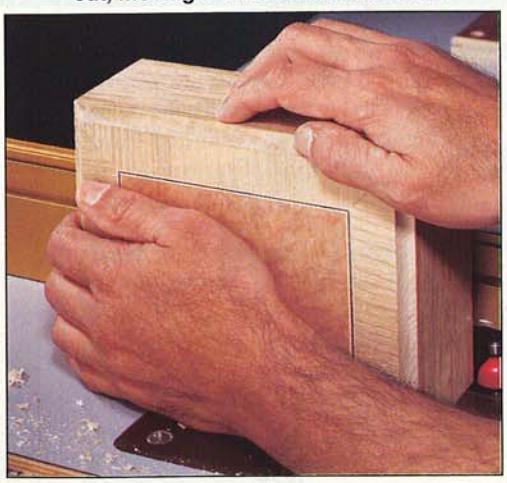
5 Apply the assembled face to the box top. (Because we used contact cement, we had to use dowels to separate the face and box top while aligning the box with the placement lines on the face. We then flipped the box and carefully removed the dowels, pressing the face out with a roller for a full bonding.) Once the glue cures, trim the excess and sand flush.

6 Remove the tape and finish-sand the veneered box. Avoid sanding through.

Cove the edges and create the lid

1 Chuck a 5/16" cove bit in a table-mounted router. (We used a new, sharp bit to reduce the chance of splintering.) Making 1/32" incremental passes, route around the top and bottom edges. Holding the box firmly and snugly to the fence, begin by climb-cutting the coves while pulling the box toward you as shown in the photo *bottom, left.* Before reaching the end of the cut, pull the box away from the fence and bit. Finish the pass by placing the box on the opposite side of the bit and routing the remaining portion of the edge. This approach again will help reduce splintering. Continue routing until reaching the cove depth shown in the drawings.

First climb-cut the coves—pulling the box partway across the bit; complete the cut, moving in the reverse direction.



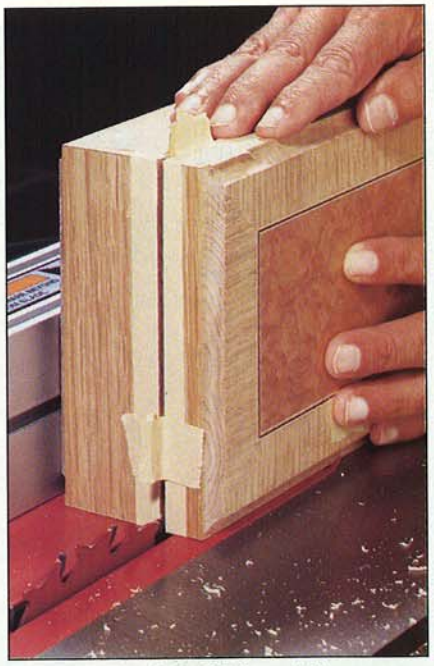
2 Note on the Exploded View drawing where the box base and lid divide. Now, apply masking tape around the box at this location to reduce splintering when sawing the box in two. Also, cut four 1×1" shims to the thickness of your tablesaw blade.

Raise the saw blade to 1/2", adjust the fence, and begin sawing off the box lid. Cut the sides first; then insert and tape shims in the kerfs. Saw the box front, add two more shims, then saw the box back as shown in the photo *above, right.* Block-sand the sawn edges to remove marks.

3 Chuck a 1/2" straight bit in your table-mounted router, raising it 3/32" above the table. Adjust the fence 1" from the bit; then rout the hinge mortises as shown at *right.* Adjust the fence as needed to complete the mortises. Test-fit the hinges and drill the pilot holes for the screws.

4 Carefully finish-sand the box and wipe it clean with a cloth. Wait at least 72 hours after gluing before applying a finish. (We brushed on three coats of polyurethane, sanding between coats with gray ultra-fine Scotch-Brite pads. Then we masked around the coves and painted these areas with black enamel. Finally, with Scotch-Brite pads, we smoothed the surfaces with paste wax.) Once the finish dries, screw the hinges in place.

5 Scrollsaw and sand the lid handle to shape using the pattern in the Exploded View drawing. Drill 1/8" dowel holes in the handle and box lid where shown. Cut two 1/8" dowels 5/16" long, glue them into the handle, then glue the handle to the lid. Now, please someone with your showy box.



Separate the box lid by raising your saw blade 1/2" and cutting evenly around the box perimeter as shown.

Rout the mortises for the 1 1/4" jewelry-box hinges. Test-fit the hinges in the openings to check the depth and

Written by Jim Harrold
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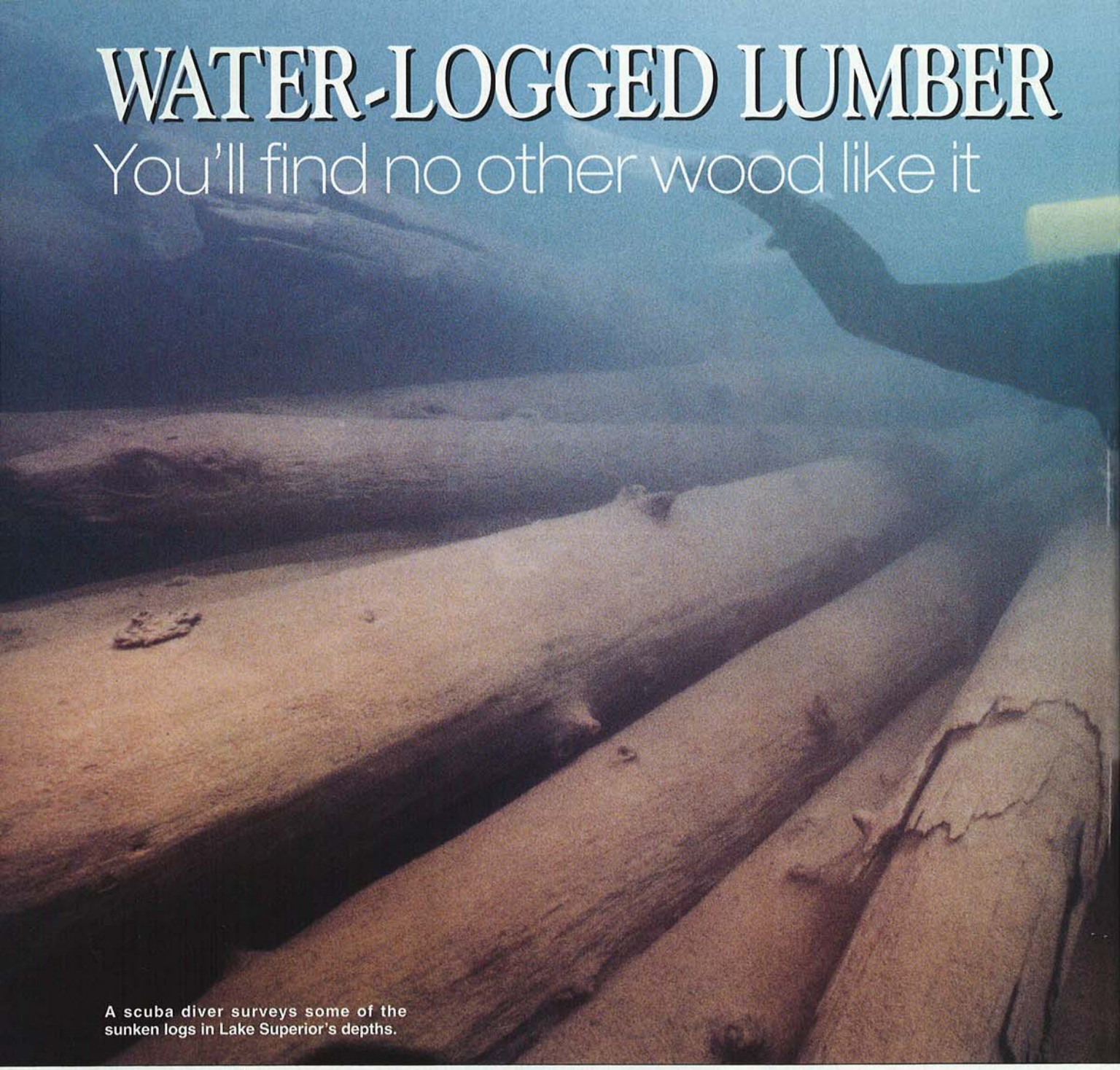


A scuba diver surveys some of the sunken logs in Lake Superior's depths.

Imagine red oak, sugar maple, and yellow birch stock with growth rings so crowded you can't count them with the unaided eye. Slow growth that evident translates to woodworking stock with the finest grain.

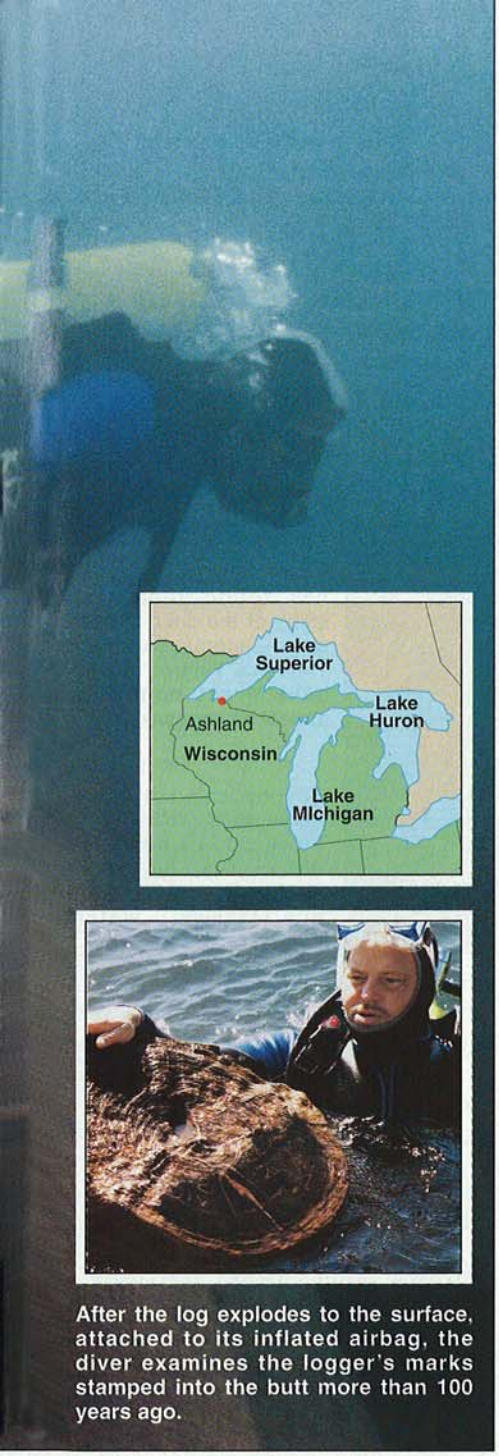
And just where do you find such wood? Scott Mitchen, a professional diver and underwater treasure hunter, found it in log form near Ashland, Wisconsin, on the bottom of Lake Superior's Chequamegon (sha-WOM-a-gon) Bay. Back in 1989, though, he wasn't looking for logs. The Milwaukee native was diving for ship wrecks and what they might hold. But he kept bumping into sunken logs—thousands of them.

A hunch that's paying off

One day, as the story goes, Mitchen was describing what he'd seen in Lake Superior's depths to an Ashland old-timer. "They just might be worth somethin'," the man said.

On that hunch, the diver returned to the lake bottom. This time he carried a large inner tube and compressed air. After attaching the inner tube to an eye bolt driven in the butt end of a log, he inflated the tube and brought the log to the surface. He then guided it to shore and sliced off an end with a chainsaw to see the wood.

What he found was incredible. Although the bark had long since deteriorated, the wood inside was



After the log explodes to the surface, attached to its inflated airbag, the diver examines the logger's marks stamped into the butt more than 100 years ago.

sound, preserved by the oxygen-free, cold water of the lake.

It took Mitchen several years to perfect the underwater retrieval technique, find customers, seek investors, and set up a sawmill. But in 1996, the Superior Water-Logged Lumber Company, Inc. was finally launched.

How the logs got there

In the latter half of the 19th century, the logging boom in northern Wisconsin was on, feeding wood to the growing cities of the Midwest and the Industrial Revolution in the East. At that time, sawmills dotted the shore of Lake Superior. Each spring, hundreds of thousand of logs cut in the woods during the winter were driven down swollen rivers to the vast lake, herded into huge rafts, and then moved by boats to the milling sites where they floated until their turn came.

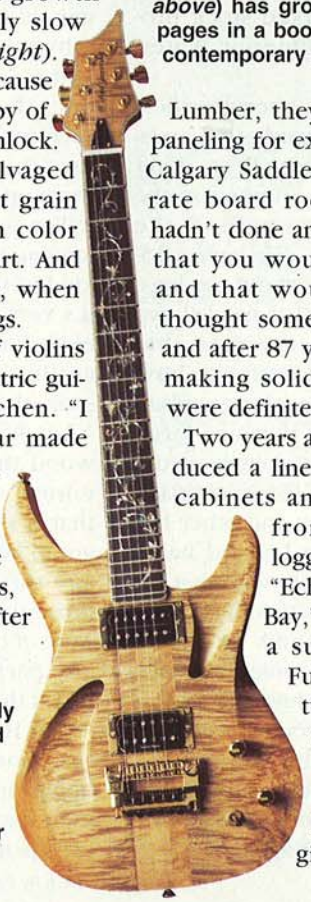
As the logs piled up, many of them—perhaps 20 percent—sank. The hardwood trees had the denser, heavier wood and thus sank first. (For another explanation, see "Finishing Touches" on *page 112.*) No one bothered or cared about recovering them. There were plenty of trees in the seemingly endless forests bordering Lake Superior, so it didn't matter that some were lost.

Wood that makes music

The sunken logs Mitchen discovered came from trees that were saplings when Columbus landed in the New World. Their annual rings—as many as 60 to the inch compared to 4-6 in today's second- and third-growth trees—indicate unbelievably slow growth (see photo *upper right*). The trees grew so slowly because they were shaded by a canopy of towering white pine and hemlock.

The wood from these salvaged logs not only has the finest grain available, but a richness in color unlike its modern counterpart. And according to the discoverer, when made into instruments, it sings.

"I'm not only speaking of violins here, but acoustical and electric guitars, and drums," says Mitchen. "I was given an electric guitar made from water-logged hard maple. It's almost too much guitar—the wood's cell walls become like little speaker cabinets. It just sings, as if the wood keeps going after the strings stop."



This electric guitar has a body of fiddleback maple reclaimed from Lake Superior. The wood's cell walls "act like little speaker cabinets," says Scott Mitchen of Superior Water-Logged Lumber.

Stock for special things

Greg Leick, chief executive officer of Sheboygan, Wisconsin-based Leick Furniture Inc., believes the sunken stock is really special. "It [the water-logged timber] always has gotten a lot of hype," says Leick. "When we first talked to Superior Water-Logged Lumber, they had furnished wood paneling for executive suites and the Calgary Saddledome, kind of corporate board room things. Yet, they hadn't done anything with the wood that you would consider timeless and that would last forever. We thought somebody should do that, and after 87 years in the business of making solid-wood furniture, we were definitely qualified."

The old-growth red oak stock raised from the depths (sample held at left *above*) has growth rings that look like pages in a book compared to the more contemporary red oak next to it.

Two years ago, his company introduced a line of mission-style curio cabinets and small tables made from Mitchen's water-logged red oak. It's called "Echoes of Chequamegon Bay," and the line has been a success so far. Leick Furniture sells to furniture stores, fine shops, and to customers like Robert Redford's Sundance Catalog, a high-end, mail order gift and decorative fur-

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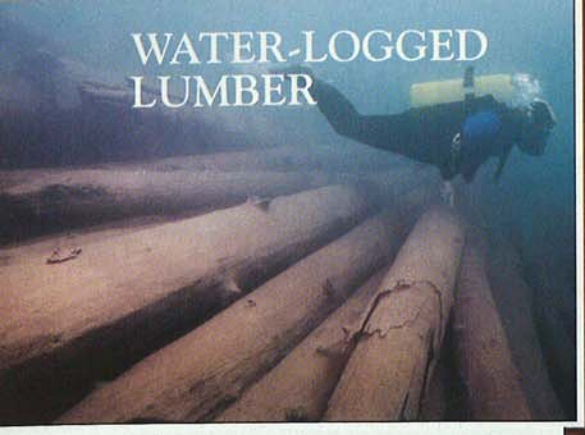

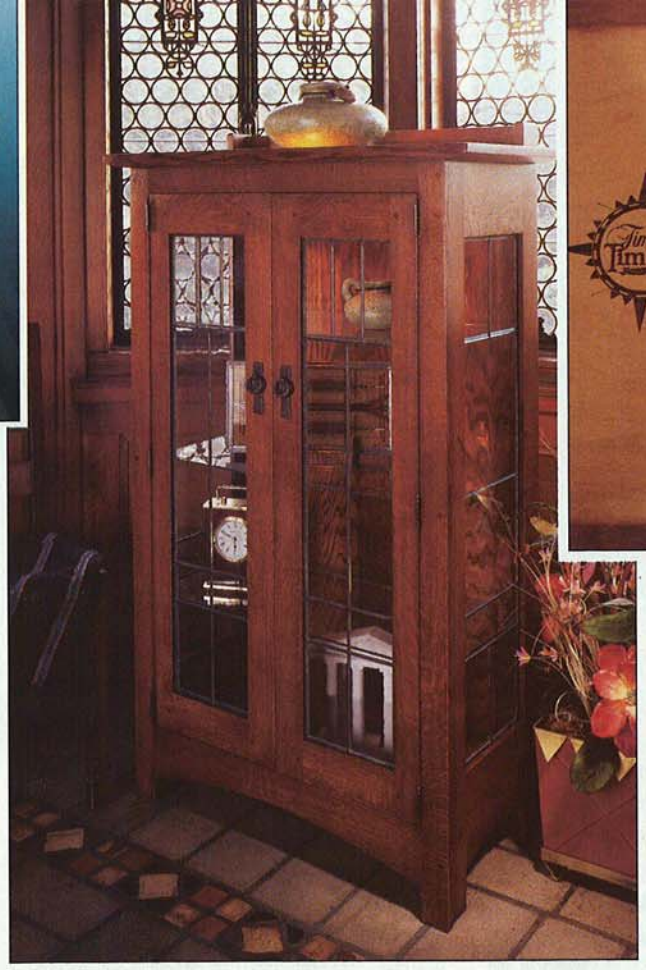

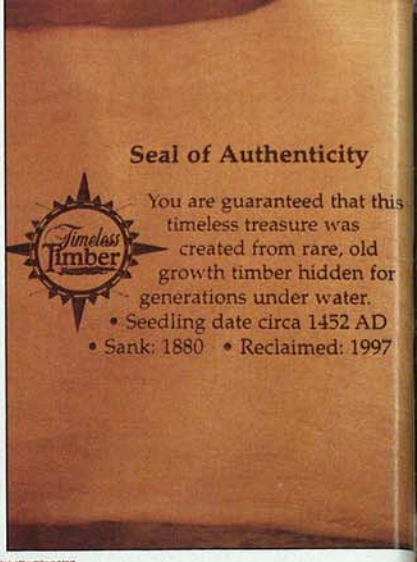
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Laser Specialties, Inc., has found that even slabs of the once-sunken wood—engraved with the Timeless Timber story—have great consumer appeal as keepsakes.

Sheboygan's Leick Furniture produces what is proving to be a popular line of Arts and Crafts-style curio cabinets from quartersawn, water-logged red oak.

nishings source. A year ago, the Sundance Catalog offered a 52"-high curio cabinet from Leick Furniture's Echoes Collection for $2,600. And the company got more orders than they could keep up with.

"The wood—and what we make from it—has a real emotional connection with the consumer," comments Leick's CEO. "And that's what furniture has to be. The pieces are a compelling reminder of the past."

Laser Specialities, Inc. (LSI), of Oshkosh, Wisconsin, makes and sells advertising specialties, such as clocks, letter openers, and desk sets with laser-engraved corporate logos. A year ago, the company began offering a line of items made from Timeless Timber, the trademarked stock produced and sold by Superior Water-Logged Lumber.

"The reception has been terrific," says Dan Hurlbut, a marketing assistant at LSI. "Most of our clients don't know one wood from another, so the key for us has been telling the Timeless Timber story. We have a 15-minute video that tells about the logs. Then with each item that we sell, we include a little romance card that explains where it came from, how old it is, why it's important, and all that. On the pieces that are large enough, we engrave the story of the wood it's made from, the lumberjack who felled it, the date, and other history. Superior Water-Logged has a fulltime historian to help with that."

According to Hurlbut, one sale of Timeless Timber items revolved around a 160-year-old Ohio insurance company that was changing their corporate logo. The executives wanted the old wood to be made into plaques depicting the new logo. "It was a play on old and new. They ordered 5,000 for their agents."

The smell of sunken stock

"Some of the water-logged lumber has unique characteristics that seem to be a byproduct of coming out of the water," Greg Leick observes. "For one, the wood smells kind of dank [before finishing]. Even Scott Mitchen says the logs stink when they bring them up from the bottom.

"For another thing, the stock is challenging to finish, because the wood is kind of thirsty once it's dried out, and it's very tight-grained. We did a lot of experimentation, and found out that aniline dye, followed by a wiping stain, then lacquer, works best."

Leick also cites the fact that the wood they've received compares to normal stock in workability, except that it's a little more brittle. "We've got to keep our knives sharp and manage our feed rates. We can do all those things, but it's not a slam dunk. And, of course, you don't want to ruin any parts. You have to practice on wood that isn't 125 years old!"

Dan Hurlbut agrees, in part. "When the wood first came in, it wasn't being dried properly, and the craftsmen had problems with it splitting, chipping out, and tearing during machining. But I haven't heard about that problem lately. And yes, it's very difficult to stain. You have to dye it, then stain it, because the grain is so very fine."

The price of old-growth wood

Superior Water-Logged Lumber uses nonstandard grading rules for its stock. There are three grades: premium, furniture, and character. All lumber is kiln-dried to 6-8 percent moisture content. Rough lumber thickness ranges from 4/4-8/4, no wider than 8", and random lengths to 16'. Non-figured lumber varies in price from $8 per board foot for character grade to $16 for premium. Prices for figured stock and unique orders are prepared on a custom basis. S4S boards are available. There is no minimum order. All orders are shipped by UPS. Call 888/653-5647, or write Superior Water-Logged Lumber Co, Inc., 2200 Lakeshore Dr., Ashland, WI 54806. Web site: www.oldlogs.com.

Written by Peter J. Stephano Photographs: Hetherington Photography; Courtesy LSI, Inc.; Leick Furniture, Inc.

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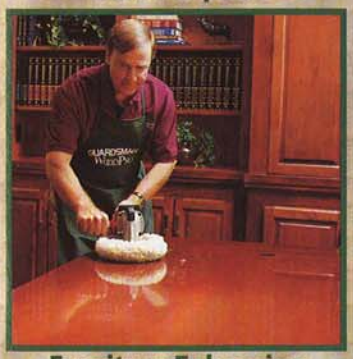
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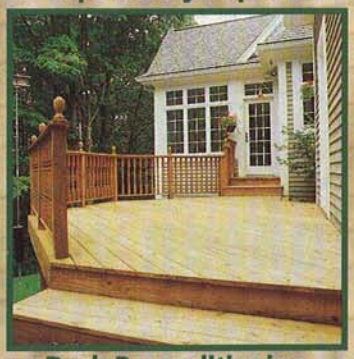
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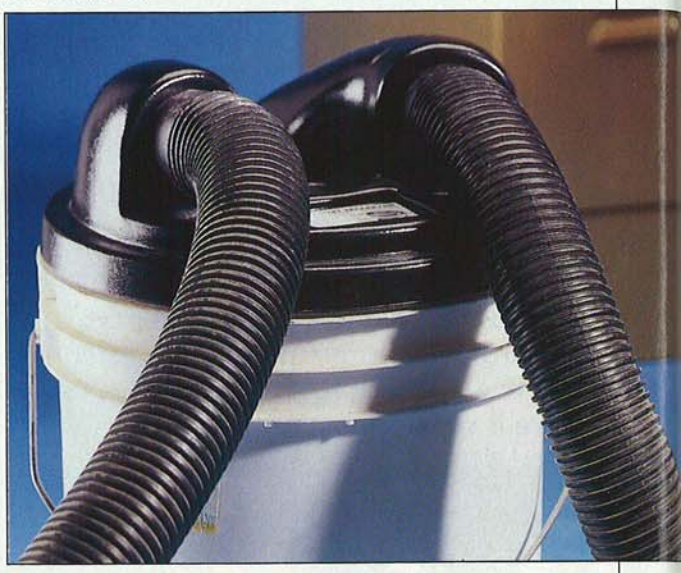
And, it works pretty well. In testing the Mini Dust-Collection Separator with my router table, I found my vacuum's drum devoid of dust until the bucket was about half full. At about three-fourths full, I began to see wood chips in the drum.

Because a shop vacuum is usually on wheels, and the 5-gallon bucket has little weight, I pulled it over a few times when moving around my shop. If you put a bit of water in the bottom of the bucket (as the manufacturer suggests to catch finer dust), it will tip less, but make a bigger mess if it does.

— Tested by Randy Zimmerman



Continued on page 90

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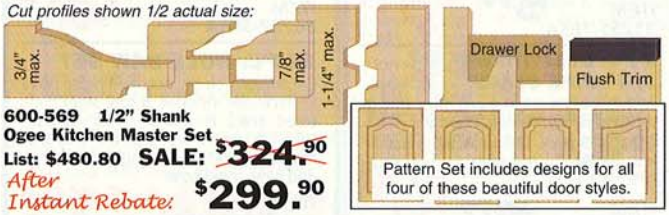

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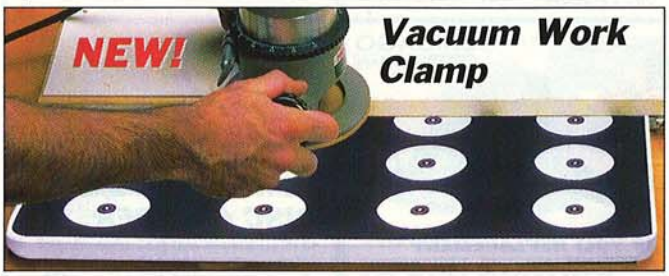

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Powerful 115V, 15 amp, single phase motor provides 5500 RPM blade speed to make quick work of your stock. 22-1/4" x 38-3/8" surface allows you to rip to the center of 4 ft. panels with ease. Includes stand, miter gauge, T-square fence system, table insert, see-through blade guard with anti-kickback fingers, and 10" saw blade.

Arbor: 5/8"; Maximum cutting depths: 3-1/8" @ 90°, 2-1/8" @ 45°; Miter gauge groove: 3/8" x 3/4"; Maximum rip to the right of blade: 27"; 46-3/8"L x 27-1/2"W x 40-1/4"H; 153 lbs. net wt.

ITEM 39516-1ESA **$359.99**

CENTRAL MACHINERY
25" RIP CAPACITY

10" INDUSTRIAL TABLE SAW

Die cast aluminum table 26" x 16" has adjustable 17-7/8" x 2" rip fence. Anit-kickback fingers and see-through blade guard for safety. Maximum depth of cut @ 90°: 3-1/8"; @ 45°: 2-1/2"; Shipping wt.: 36 lbs.; Miter gauge adjusts 0° – 60° left & right; Motor: 2HP, 115V, 60 Hz, 10 amp, 4500 RPM; Blade sold separately.

~~$119.99~~ **$79.99**
ITEM 38533-1ESA

10" 40 TOOTH CARBIDE TIP SAW BLADE

Resharpenable precision ground tips; 5/8" arbor
ITEM 00529-4ESA **$9.99**

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Pittsburgh LIFETIME WARRANTY

2 PC. 3/4" HEAVY DUTY PIPE CLAMP

Constructed from heat-treated cast iron. Add to a 3/4" threaded pipe and slide the spring loaded end on. Pipe not included.

Handle screw operating range: 2-1/8"; 1-1/2" throat depth

ITEM 31255-1ESA ~~$6.99~~ **$3.99**

2 PC. DEEP THROAT 3/4" PIPE CLAMP

Pipe not included.

Add these fixtures to a 3/4" pipe and get a clamp with 7" throat capacity.

7" throat depth; 1-7/8" x 2-3/16" pressure feet; Steel lead screw with cast iron crank

ITEM 38299-3ESA ~~$9.99~~ **$6.99**

SAVE UP TO 58%

10 PC. LARGE HOLE SAW SET

Bores through 1" thick drywall, wood and plaster with ease. Includes cutting cup sizes 2-1/2", 3", 3-1/2", 4", and 5", plus 3/8" mandrell, drive plate, hex wrench, and blow mold case.

ITEM 36222-5ESA **$4.99**

11 PC. HOLE SAW SET

Cut smooth, clean, accurate holes up to 1" thick! Set includes 8 tool steel cups sized 3/4", 1", 1-1/8", 1-1/4", 1-1/2", 1-3/4", 2", and 2-1/2" plus 1/4" and 3/8" mandrels, 1/4" bit (2" long), hex wrench and blow mold case.

ITEM 38425-1ESA **$5.99**

CENTRAL PNEUMATIC®
MEETS ENVIRONMENTAL REGULATIONS

HVLP GRAVITY FEED SPRAY GUN

High volume low pressure technology applies with less overspray. Stainless steel needle and tip allow use with water-based material. Includes air regulator.

PSI: 15-50; CFM: 2.8 to 8; Cup size: 20 oz.; Nozzle size: 1.4mm; Material output: 20 to 50cc/minute; Air inlet: 1/4" NPT; Tool weight: 2 lbs.

~~$59.99~~ **$49.99**
ITEM 38308-1ESA

GRAVITY FEED PAINT CUPS

SIZE	ITEM	PRICE
20 oz.	38517-1ESA	$7.99
33 oz.	38518-1ESA	$9.99

A. 18 VOLT CORDLESS 3/8" DRILL/DRIVER WITH KEYLESS CHUCK

VSR; Speed range: 0-900 RPM; 3/8" Jacobs® keyless chuck; 6 pc. screwdriver & 6 pc. drill bit sets; Includes charger, battery and carrying case

~~$72.99~~ **$59.99**
ITEM 37144-4ESA

18 VOLT REPLACEMENT BATTERY

ITEM 37145-4ESA **$37.99**

B. 18 VOLT CORDLESS 5-3/8" CIRCULAR SAW KIT

Kit includes: 1 hour quick charger, 18V battery, saw and hex key. 3000 RPM, 1.3 amps, 10mm arbor, 50° bevel capacity

~~$109.99~~ **$69.99**
ITEM 37412-7ESA

5-3/8" TUNGSTEN CARBIDE TIP BLADE

Teeth: 24, C2 carbide steel, 10mm arbor, maximum RPM: 7000

ITEM 37413-2ESA **$6.99**

RIP FENCE

ITEM 37449-1ESA **$3.99**

CHICAGO Electric Power Tools

HEAVY DUTY 4-1/2" DISC GRINDER

- 5/8"-11 spindle with 7/8" arbor adapter
- Motor: 3/4 HP, 115V, 5.18 amps
- Spindle lock • 11-7/8" long
- High powered 10,000 RPM

~~$39.99~~ **$19.99**
ITEM 31135-6ESA

4-1/2" x 1/4" GRINDING WHEELS • 24 grit, 7/8" arbor

FOR	ITEM	10 PACK
Metal	06674-0ESA	$8.99
Masonry	07422-2ESA	$8.99

CONTROLLED PRESSURE, NON-MARRING HARDWOOD CLAMPS

SAVE UP TO 50%

These hand screws will clamp without scratching or marring your workpiece. Hardwood jaws distribute pressure evenly, and can easily be adjusted for non-parallel surfaces and odd shapes.

JAW LENGTH	JAW CAPACITY	ITEM	PRICE
6"	3"	06986-3ESA	$2.99
7"	4-1/2"	06987-4ESA	$3.49
8"	4-3/4"	04852-1ESA	$3.49
10"	6"	04853-1ESA	$3.99
12"	8-1/2"	04854-2ESA	$4.49

RADIAL ARM SAW KIT

Award-winning patented design features easy setup with most 7-1/4" and 7-1/2" circular saws. Makes fast accurate bevels, rips, miters, and crosscuts. Ruggedly built and completely portable.

- Saw and table wood not included

Maximum miter & bevel: 45°; Crosscut: 12-3/4"; Length: 24"; Rip capacity: 15-3/4"; Height: 22"; Weight: 23 lbs.

~~$59.99~~ **$49.99**
ITEM 33576-1ESA

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Ryobi R160K
LIMITED QUANTITIES

1-1/2 HP ROUTER

- 25,000 RPM • 8 amps @ 120V
- All ball bearing motor • 1/4" collet
- Includes spindle lock and wrench storage
- Factory reconditioned, factory perfect

ITEM 51782-0ESA **$47.99**

5 PC. STRAIGHT ROUTER BIT SET

- Carbide tips • 1/4" shanks
- Includes: 1/4", 3/8", 1/2", 5/8" and 3/4" straight bits (2 flutes)

ITEM 38357-1ESA **$9.99**

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FREE ACCESSORIES: Stand, belt, disc, open-end wrench, & hex key wrench

6" BELT & 9" DISC SANDER

1 HP, 110 volt, 8 amp, 3450 RPM, all ball bearing motor; overall height: 40"; table tilt: 0° to 50°; table surface: 6-1/2" x 12-3/4"; two position work table for disc or belt use; weight: 121 lbs.; disc speed: 1720 RPM; belt: 6"W x 48"L; belt speed: 1280 FPM

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ITEM 06852-2ESA

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ITEM 30766-0ESA **$3.99**

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12" HEAVY DUTY DOUBLE BEVEL SLIDING COMPOUND MITER SAW

- 12" crosscut capacity at 90°
- Precision miters 0-50° left & 0-60° right
- Includes 60 tooth carbide blade & blade wrench
- Factory recondtioned, factory perfect

13.0 amps, 4000 RPM; 0-48° bevel capacity; Capacity: 5-1/4" crown moulding vertically; 5-1/4" base moulding vertically; 4-1/2" x 12 @ 90° miter, 4 x 8 @ 45° miter

ITEM 51737-0ESA **$499.99**

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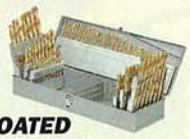

115 PC. TITANIUM NITRIDE COATED DRILL BIT SET

These titanium nitride coated high speed steel bits last up to six times longer than standard bits. Cool turning titanium bits are a must for metalworkers. All bits can be resharpened. Straight shanks.Includes: 29 fractional sizes 1/16" thru 1/2", 26 letter sizes A thru Z, 60 numbered sizes 1 thru 60, and heavy duty metal drill index.

~~$34.99~~ **$29.99**

ITEM 00528-1ESA

115 PC. M2 HIGH SPEED STEEL DRILL BIT SET WITH INDEX

~~$59.99~~ **$49.99**

- Same sizes as above
- M2 high speed steel

ITEM 01611-1ESA

CENTRAL PNEUMATIC CONTRACTOR SERIES

DRIVES 1-1/4" BRADS & 1-1/8" STAPLES!

1/4" CROWN STAPLE/18 GAUGE BRAD NAILER KIT

Includes: (2000) 18 gauge brads, (2000) 18 gauge staples, lubricating oil, and carrying case.

1/4" NPT; 100 brad capacity, 110 staple capacity; Brad length: 5/8" to 1-1/4"; Nonslip rubber grip; Staple length: 1/2" to 1-1/8"; 100 PSI maximum pressure; 3 lbs. tool weight

~~$94.99~~ **$72.99**

ITEM 35673-2ESA

FASTENERS

SIZE	QUANTITY	ITEM	PRICE
5/8" LONG STAPLES			
3/16" crown	2000	31983 -0ESA	$3.99
11/32" crown	1200	31982 -5ESA	$3.99
1/2" crown	800	31981 -0ESA	$2.99
BRADS			
5/8" w/heads	3000	31984 -0ESA	$3.99
5/8" w/o heads	3000	31985 -0ESA	$3.99

CHICAGO Electric Power Tools

3-1/4" PLANER

- Front base has a V-groove to help guide in chamfering
- 2 blade cutter
- Depth adjustment knob
- Includes rabbeting guide plate/fence, sharpening holder, blade setting jig, replacement brushes and belt
- D-handle with lock-on button
- 110V, 5 amps, 17,000 RPM
- 34,000 cuts per minute
- 1/10" maximum depth of cut; 3-1/4" planing width
- Tool weight: 6-1/4 lbs.

~~$53.99~~ **$39.99**

ITEM 32222-3ESA

2 PC. REPLACEMENT BLADES

$9.99

ITEM 33262-0ESA

IRON HORSE

Iron Horse TSH-11

DELUXE FOLDING SAWHORSES

Handy foldable sawhorses are there for the tough jobs then fold up and store away. Reinforced steel construction. Easy to assemble, easy to use, easy to store.

- 24"W x 30"H x 19"D

1 PAIR FOR ~~$25.99~~ **$19.99**

ITEM 06400-1ESA

PREMIUM SAWHORSES

Support work loads weighing over 2000 lbs.

- 2" x 6" heavy duty steel legs
- 2" x 6" wood top

Iron Horse TSH33

1 PAIR FOR ~~$39.99~~ **$29.99**

ITEM 33589-2ESA

ROUTER SPEED CONTROL

Get better results and longer bit life when routing tough woods, plastics, even aluminum. Plug your router into the control unit and you instantly have a variable-speed tool. Works with any universal AC/DC brush type motor, 15 amps and under. Will not work with soft or slow start motors.

~~$24.99~~ **$16.99**

ITEM 37359-2ESA

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10 PC. SPRING CLAMP SET

Ideal for gluing, assembling, welding, and 1001 other uses in home or shop. Made of nickel-plated, heavy gauge steel, with heavy duty tempered springs and comfortable vinyl coated handles.

- Contains four 1" capacity clamps, four 2" capacity clamps, and two 3" capacity clamps

~~$9.99~~ **$5.99**

ITEM 37451-4ESA

CENTRAL MACHINERY

10" PLANER

LIMITED QUANTITIES

- 2 HP, 110V, 1 phase, 11 amp, 8000 RPM
- 19" x 16-5/8" x 16"overall dimensions
- 10-1/8" blade size
- Stand sold separately
- 2-blade cutter head
- 5-1/8" working distance
- 10-1/8" x 9-1/8" feed table
- 61 lbs. shipping weight

~~$239.99~~ **$189.99**

ITEM 06935-8ESA

PLANER STAND

- 20" x 10" x 27"
- Shipping weight: 20 lbs.

ITEM 32969-2ESA **$32.99**

REPLACEMENT BLADE SETS (2 PCS.)

STEEL	ITEM	PRICE
Spring	38265-0ESA	$15.99
High Speed	36068-1ESA	$29.99

DELTA®

LIMITED QUANTITIES

16" 2-SPEED SCROLL SAW

Delta 40-560R

- 1/10 HP, single phase, 115V, 1.2/.7 amp induction motor
- 850 and 1725 SPM
- Capacities: 16" throat, 2" thick, 7/8" stroke
- Accepts 5" straight end blades
- Table tilts 45° left for bevel cuts
- Predrilled base holes and rubber pads for bench mounting
- 11-3/4" diameter table
- Cast iron table and frame
- Factory reconditioned, factory perfect

~~$129.99~~ **$99.99**

ITEM 51840-2ESA

SKIL

Skil 5250:05

LIMITED QUANTITIES

CLASSIC SERIES 7-1/4" CIRCULAR SAW

- Powerful 2-1/3 HP motor; 120V AC/DC, 10 amps • High torque, 4600 RPM
- 2-7/16" maximum cut @ 90°; 1-5/16" maximum cut at 45°
- Includes SKIL EDGE 18 tooth carbide blade

ITEM 01487-5ESA ~~$54.99~~ **$45.99**

7-1/4" CIRCULAR SAW

Maximum cut @ 90° 2-7/16", @ 45° 1-15/16"; 10 amps, 2-1/3 HP, 4600 RPM; Factory reconditioned, factory perfect

Skil 5150 ~~$34.99~~ **$29.99**

ITEM 06188-4ESA

CHICAGO Electric Power Tools

VARIABLE SPEED RECIPROCATING SAW

- 300 SPM to 2400 SPM
- 600 Watts
- All ball bearing
- Overall length: 17"
- Gear driven, variable speed
- 1-1/4" stroke
- 3.6 amps
- 110V, 60 Hz, single phase
- Tool weight: 7-1/4 lbs.

ITEM 36595-6ESA ~~$59.99~~ **$39.99**

RECIPROCATING SAW BLADES (10 PACK)

- 5 metal cutting 18 TPI, 5 wood cutting 8 TPI
- Universal 1/2" shank

ITEM 06467-0ESA **$5.99**

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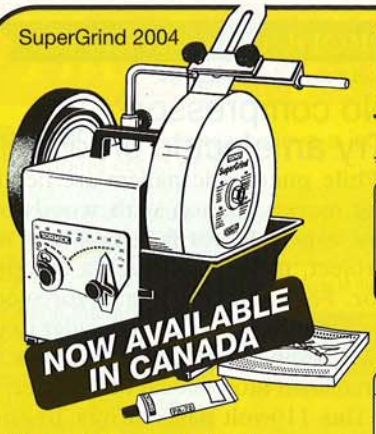

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*Denotes included as standard with 2004 SuperGrind.

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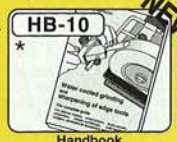
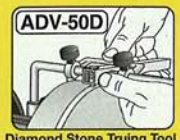


Handbook Water cooled grinding and sharpening of edge tools.

Honing Compound For the Leather Honing Wheels.



Diamond Stone Truing Tool Trues the stone exactly round and flat.

Multi Jig For turning skew chisels, parting/beading tools, roughing gouges. Straight carving gouges 1" - 2".

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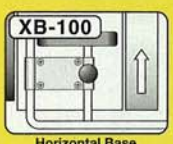

Horizontal Base For grinding away from the edge. Ideal for turners and woodcarvers.

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Universal Gouge Jig For fingernail shaped turning gouges. Carving gouges and V tools. Max. width 1".

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Axe Jig For carving and carpenter's axes. Max. axe head size 6½".

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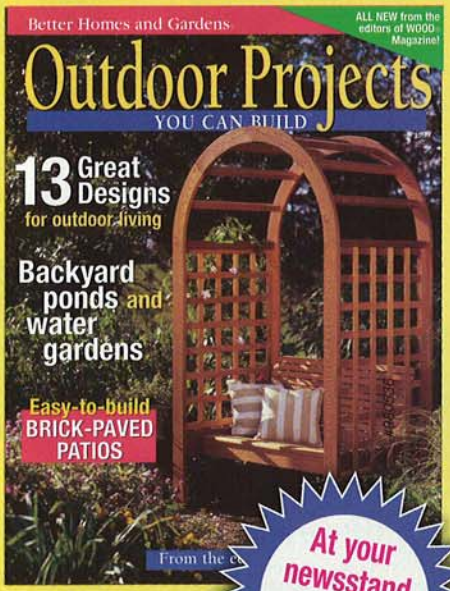
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NEW! *910001N* **5/8-1¼" Brad Nailer w/case** $98.90
NEW! *920001N* **5/8-2" Brad Nailer w/case** $134.50
NEW! *900001N* **1/2-1" (1/4" crown) Stapler** $119.90
NEW! *950001N* **1/2-1½" (1/4" crown) Stapler** $144.50
SLP20 **Brad Nailer** $193.50
SFN1+ **1-2" Finish Gun** ...$262.00
SFN40 **1-2½" Finish Gun** w/case ..$317.90
SKS **Med. Duty Stapler** $247.00
NEW! *PRO600* **Framing Nailer**. ..$362.90
SCN40R **Roofing Nailer** ...$387.90
SN60 **Full Round Head Nailer** ..$388.90
PC0701 **A9 Palm Nailer** ...$159.00

ITW DeVilbiss

The top name in spray finishing is ready for your woodworking needs.
FLG-622-322 **HVLP Suction Gun** $159.95
FLG-631-318 **HVLP Gravity Gun** $169.95

FEIN

FEIN Turbo II - Dust Free Vacuum
Powered by 2-stage motor w/ bypass cooling to assure motor runs cool even if the hose or filter is blocked. Excellent Quality!
FIN 9-55-13 .....$242.90
FIN MSXE-636-2 **VS Triangle Sander w/ Case** $168.90

PORTER+CABLE

Brad Nailer & Air Compressor Combination Kit
Choice of BN125 or BN200 Nailer includes: 1 HP compressor, brad nailer kit, 25 ft. air hose and M/F hose connections.
#PCT CFBN125 SALE $258.90
#PCT CFBN200 SALE $296.00

PORTER+CABLE

NEW! *557* **Plate Joiner Kit** •Does mini size biscuits & standard size •7.5 amp motor. •Tilt-fence does not have to be removed for flush cuts. •7-position depth stop •Fence let's you position your cut from outside face •Includes case, dust bag, 2" & 4" blades & extra biscuits.
SUPER SALE $197.90
5554 **1000 Pc. Asst. Biscuits** $22.50

Brad, Finish & Framing Nailer Kits
All kits include case
NEW! *CDA250* **15G Cordless Angle Finish Nailer** $277.00
BN125 **18G** ⅝"-1¼" Brad $87.90
BN200 **18G Brad Nailer Kit** .$124.00
DA250A **15G** 1¼"-2½" Finish .$214.90
FN 250A **16G** ¾"-2½" Finish .$181.50
NS150 **18G** ⅝1¼" **Crown Stapler** $136.90
FC350 **Clipped Head** 2"-3½" Framing Nailer Kit $287.00
FR350 **Full Round Head** 2"-3½" Framing Nailer Kit $287.00
693PK **1-1/2 HP Plunge Router Kit includes 690 w/ fixed base & plunge base w/ case** $188.00
690 **1¼ HP Router**. ...$142.00
691 **1¼ HP HDL Router** $159.00
6931 **Plunge Base Only** $82.00
6911 **D-Handle Base Only** ..$72.00
7539 **3-1/4 HP Plunge Router** - Plus Free Fine Depth Adjuster ($26.50 Value) $294.90
7518 **3-1/4 HP 5SP FB Router** $274.00
42000 **8 pc. Templet Guide Kit** $29.95
97310 **Laminate Trim Kit** ..$192.50
697 **Router Table** w/ 1¼ H.P. Router $233.00
698 **Router Table** w/out motor $133.50
9862F **12V Cordless Drill Kit w/ Free Flashlight** $158.90
9872 **14.4V Cordless Drill Kit** w/two batteries, case & charger $178.90
9444 **Sander Kit** $103.50
330 **Speed Block Sander** ...$68.00
332 **5" QS Palm Sander** ...$59.90
333 **5" QS R/O Dst Sdr H&L** ..$63.90
333VS **VS R/O Palm Sander**$77.00
334 **5" QS R/O Dustless Sdr** $64.90
352VS **VS Belt Sander** ...$177.00
9352VS **VS Belt Sander w/ case** $188.90
7335 **5" VS R/O Sander** ...$139.00
97355 **5" VS R/O Sander** with Dust Collection & Case $149.00
552 **Prod. Pocket Cutter** ...$598.00
7800 **Drywall Sander** $348.80
362 **4x24 Belt Sander w/ Bag** $227.90
362VS **4 x 24 VS Belt Sander & Bag** $235.00
360 **3x24 Belt Sander w/ Bag** $224.00
360VS **3x24 VS Belt Sander & Bag** $227.00
347K **7-1/4 Circular Saw w/Case** $127.90
743K **L/H 7-1/4 Circular Saw w/ case** $127.90

PORTER+CABLE

FACTORY RECONDITION TOOLS
Full One Year Warranty!
352VSR **VS Belt Sander** ...$139.90
9444R **Profile Sander Kit** ...$79.90
9872R **14.4V Cordless Kit** ..$147.90
9862R **12V Cordless Kit** ...$122.90
9737R **9.6A VS Tiger Saw Kit** $136.90
340R **1/4 Sheet Fin Sander**. ..$38.90

DELTA

12-1/2" Planer
Features: •Quick change knife system •Exclusive cutterhead-snipe control lock •Easy-to-read English and Metric scale.
#DEL 22-560 *List $568.00* **SALE** $328.50
BONUS: Free Extra Set of Planer Knives & Dust Chute!

New! DELTA New!

NEW! *36-920* **Grand Edition White Uni-Saw** ..$1599.00*
NEW! *36-455* **Grand Edition White Contractor's Saw** $785.00*
NEW! *28-270* **Grand Edition White Band Saw** Includes Enclosed Stand, 18" White Rip Fence, Mobile Base and Cool Blocks $788.00*

Uni-Saws With Biesemeyer or Uni-fence
36-830 **3H.P.** w/30" Uni-fence $1399.00*
36-831 **3H.P.** w/30" Biesemeyer T-Square Fence$1399.00*
36-820 **3H.P.** w/52" Uni-fence (Special Edition)...$1499.00*
36-821 **3H.P.** w/50" Biesemeyer 52" T-Square Fence $1499.00*
34-182 **Tenoning Jig** $89.00
11-990 **5SP Drill Press** $192.00

14-650P **1/2 H.P. Hollow Chisel Mortiser** SUPER BONUS: with 2 FREE Delta Mortising Chisels & Bits (1/4" & 3/8") $248.00

50-840P **1 HP 650 CFM Dust Collector** Includes Over $27.00 Value Free •FREE 1-Delta 4' x 10' Dust Hose •FREE 1-Delta Alum. Blast Gates •FREE 2-Delta 4" Hose Clamps
TOTAL PACKAGE ONLY **$235.00**
SUPER BONUS BUY!

50-850P **1-1/2 HP 1200 CFM Dust Collector** Includes Over $42.00 Value Free •FREE 1-Delta 4' x 10' Dust Hose •FREE 2-Delta Alum. Blast Gates •FREE 4-Delta 4" Hose Clamps
TOTAL PACKAGE ONLY **$305.00**
SUPER BONUS BUY!

NEW! *50-820* **Portable Dust Collector** $184.90
50-851 **2 HP 1200 CFM Dust Collector** $492.00
36-865 **Versa-Feeder** $239.00
22-675Y **15" Planer** with FREE 50-655 stand (a $260.55 value) $1058.00*
28-275 **14" Open Band-Saw** $497.90*
28-280 **14" Enclosed Band Saw 1 HP** $679.00*

31-780VP **OS Sander** Super Bonus Buy: Includes Sanding Spindle Set. $219.00

40-650 **Q-3 18" Scroll Saw** $398.90
37-190 **6" Deluxe Jointer** $379.00*
NEW! *37-195* **6" Pro Jointer** $519.00
37-350A **8" Jointer** w/stand $1337.90*
43-379 **Special Edition Shaper** $1235.00*
43-505 **Router/Shaper** $297.90
31-280 **Sanding Center** $728.00*

*** Price After Delta Rebate, Ends 3/31/99**
Except Unisaws and H.D. Shaper

DEWALT

DW733 **12-1/2" Planer w/ extra set of knives & dust chute** $397.90
DW788 **Scroll Saw** with FREE stand (a $79 value) ...$449.00
DW 708 **12" Compound Sliding Miter Saw w/ free dust bag** ..$642.00
DW 744 **10" Table Saw** $497.00
DW 682K **Biscuit Joiner** with FREE 100 Biscuits (*8 value) $157.90
DW421 **Sander** $69.95
DW 423 **5" EVS R/O Sander w/H&L & Dust Collector** $82.50
DW 991KS-2 **14.4V Combo Drill & Saw Kit w/case** ...$329.00
DW 364 **7-1/4 Circular Saw with Brake** $149.90
DW 677K **3-1/8" Planer with case** $149.90
DW-4K **4 Piece Fat Boy Combo Kit BONUS: Free Dewalt Leather Holster ($29.00 value)** Includes: Recp. Saw, circ. saw, hammer drill/driver, flex flashlight, charger & case. $565.00
DW625 **VS Electronic 3HP Plunge Router** BONUS: Free Fine Depth Adj. (a $25.00 value) $275.00
DW621 **2HP VS Plunge Router** BONUS: Free Fine Depth Adj. (A $20.00 value) $188.90
DW995KS-2 **18V Combo Drill & Saw Kit w/case**. ..$367.50
DW321K **5.8A Jig Saw Kit** $162.00
DW972K-2P **12V Cordless Drill, 2 Batt.** & Free flashlight..$188.95
DW991K-2P **14V Cordless Drill, 2 Batt.** & Free flashlight...$208.95

JDS COMPANY
NEW! *JDS 750* **750 CFM Filtration System** $255.00
JDS 8-12 **1570 CFM Filtration System.** .$488.00

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PRODUCTS THAT PERFORM — SHOP TESTED

Continued from page 84

No compressor? Try an electric brad nailer

While pneumatic nailers are becoming more common with woodworkers, especially for fastening trim to a project, many shops lack a compressor. For those folks, and for woodworkers who need a trim nailer to use away from the shop, Sears offers the Craftsman Professional Brad Nailer.

This 110-volt nailer drives 18-gauge brads from 3/16" to 1 3/16" long. Although it had no problems in softwoods and hardwood moldings, the Professional Brad Nailer had difficulty driving the longest brads into solid oak; about ¼" of the brad stood proud from the board. But, after a little experimentation, I quickly found I could match the length of fastener to the work and wood with good results.

The 9-amp. coil gives a pretty good kick, and without a protective cover on the nose, the nailer easily divots softwoods and occasionally dents hardwoods. If you have compressed air in your shop and always work within easy reach of your compressor, you probably won't want one. But for the rest of us, the Craftsman Professional Brad Nailer offers fast, split-free power-nailing anywhere in the house or shop.

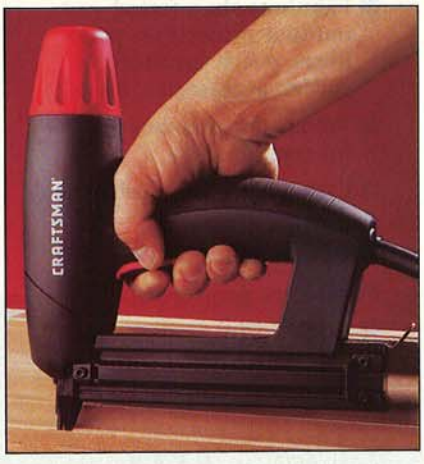
—Tested by Bob McFarlin

PRODUCT SCORECARD

Craftsman Professional Brad Nailer

Performance	★ ★ ★ ☆ ☆
Price	$140
Value	★ ★ ★ ☆ ☆

Available at Sears and Sears Hardware stores nationwide.



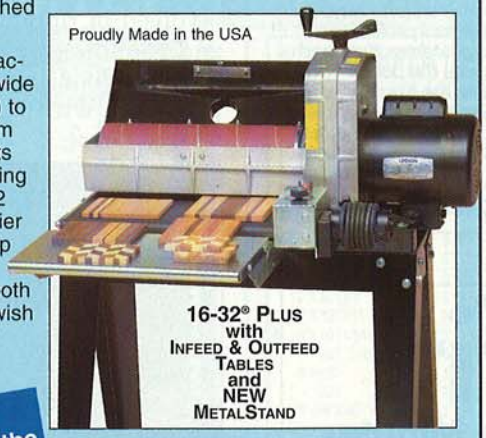
Continued on page 92

The Joy of Sanding

Right!? Who would believe a job as tedious and dusty as sanding could be a joy?

Thousands of Performax owners do. With their Performax® drum sander... no more sawdust in their faces, no more high and low spots on their finished pieces.

Imagine the satisfaction of sanding a wide surface (up to 32") to within .010" uniform thickness across its full width. Or sanding stock as short as 2 1/4" without a carrier board or scuffed up fingers. Fantasize sanding to as smooth a surface as you wish without any elbow grease.



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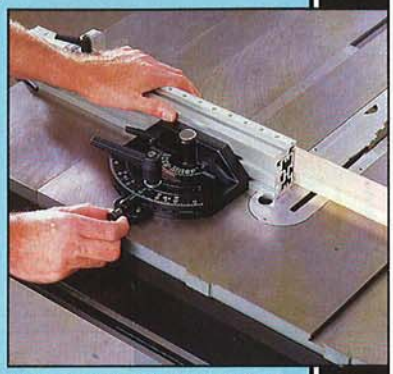
NEW - READY-TO-WRAP ABRASIVES

Circle No. 78

"All my tools should be this good!"

*The **Accu-Miter**® is a professional miter gauge that makes perfect angles easily. Shot-pin action assures dead-on accuracy for common angles — plus a precise protractor scale for everything in between!*



We do not recommend operating without the saw blade guard, as is shown here.
US Patent #5,038,486

Optional accessories: manual clamp– pneumatic clamp– 3/8" x 3/4" miter bar–

JDS COMPANY

Precision Woodworking Equipment

Call or write for our free brochure.

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$149

POWERMATIC®

10" Table Saw
Model 411

Extensions provide 26-1/2" x 31" table surface, 4800 RPM, carbide-tipped blade tilts left to 45 degrees, fence has cam action to lock both ends to table, see-through guard, splitter, dust chute, safety switch.

12-1/2" Planer
Model 412

Quick-change double-sided knives, extra long 12" infeed & outfeed tables with stock rollers, safety switch, head-locking mechanism to reduce snipe, 4" dust collection shroud.

Dust Collector
Model 471

1hp, 650 CFM, 2.4 cubic feet capacity, 4" outlet with hose, casters, cloth bags.

Oscillating Sander
Model 14

14-3/4" square cast iron table tilts 0 to 45 degrees, dust collection shroud, comes with 3 spindles & 2 rubber drums (1/4", 1/2", 5/8", 1-1/2", & 2" standard, 3" optional).

Compound Miter Saw
Model 409

Positive stops at 0, 15, 22-1/2, 30 & 90 degrees, 10" carbide-tipped blade, crown molding angle marks, adjustable extensions.

Bench-top tools from Powermatic. Now aren't you glad you waited?

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Circle No. 1985

Turn A Profit!

Make Elegant Pencrafting Projects In Minutes

For less than $5.00 and in just minutes you can make unique hand turned projects that sell for $20.00 and up. Our selection of lathe projects includes over eighty 24kt gold plated kits that are easy to turn and make wonderful gifts. Select from a wide assortment of pencrafting projects. Every kit comes with detailed instructions, a lifetime guarantee and customer support from our knowledgeable staff.

The Carba-Tec 3XL Variable Speed Mini Lathe

WINTER SALE $274.95 UPS $13

The perfect lathe for pencrafting and turning small projects. Both beginners and experienced turners will appreciate the quality and convenience of this easy to use, full featured mini-lathe. With the purchase of the Carba-Tec lathe you'll receive a FREE 35 minute instructional video "Turning Pens and Other Small Projects"- a $19.95 value!

Specifications
- Variable speed 1/4 HP motor
- Cast iron construction
- 12-1/2" between centers
- 3/4" x 16 tpi Spindle w/ #1 MT
- 6" swing over bed • Weighs 37 pounds

Includes extras worth $65:
- Video tape • 3" toolrest • 4 prong spur center
- 2" faceplate • 2 belts • Live tailstock center w/ cup & point inserts

Carba Tec 3XL Mini Lathe *SAVE $15!*
#CML3XL Reg Price - $289.95 ..... ONLY $274.95 / UPS $14

Duplicating Attachment for Carba-Tec and Jet® Mini Lathes

SALE PRICE $119.95 UPS $12

Turn your pencrafting projects more easily, quickly, and accurately. Duplicate from a hand cut pattern, 3-D original, or from PSI pre-cut Profile Templates. Template sets are available for twelve project kits. The Attachment fits all Carba-Tec, Ryobi® and Jet® style mini-lathes. Duplicates up to 10" long with a depth of cut up to 3/4". The cutter is HSS ground on both ends. Includes a FREE instructional video, "Duplicating Attachment Projects and Techniques"- a $19.95 value!

Duplicator for Carba-Tec mini-lathe w/video
#CML-DUP ..... $119.95 / UPS $5
Duplicator for Jet® mini-lathe w/video
#CML-DUPJ ..... $129.95 / UPS $5

Carba-Tec 3XL Mini-Lathe and Duplicator Package
#CML3-PAK *SAVE $25!* ..... ONLY $384.90 / UPS $20

Everything you need — PEN MAKING AND MINI LATHE **STARTER SETS** — SAVE $40
- Carba-Tec 3XL or Jet Mini Lathe
- 7mm Drill Guide • 1/2" Penmaking Gouge • 7mm Pen Kits - 10 pk • 7mm Pencil Kits - 10 pk • "Pen Turning" Instructional Video
- Mandrel w/ bushings & drill bit • Clear Pen Pouches - 20 pk

#CML-SS *Carba-Tec Set* ..... ONLY $357.90 UPS $19
#JMINI-SS *Jet Lathe Set* ..... ONLY $413.85 UPS $29

If you already own a lathe — 7MM "SLIMLINE" **STARTER SET** — SAVE $15
- 10 Pencil Kits • 10 Pen Kits • Drill Guide
- Long Mandrel • Bushings • Drill Bit

#PKSS-EL #1 MT (Carba-Tec/Sears) ..... $75 SET
#PKSS-FL #2 MT (Delta) ..... $75 SET
#PKSS-CL 5/8" (Shopsmith) mandrel kit ..... $75 SET
#PKSS-DL 3/8" drill chuck mandrel kit ..... $70 SET

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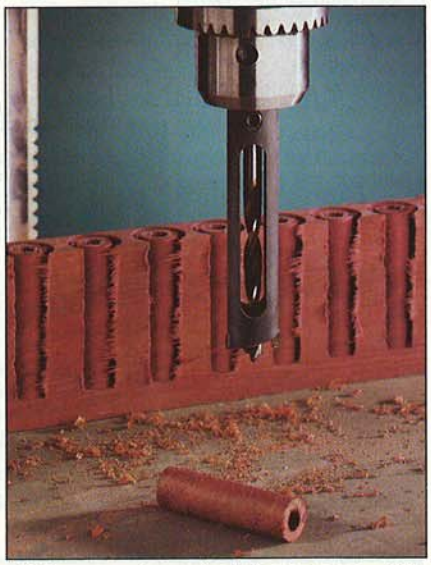
FREE CATALOG! *For more information about pencrafting equipment, kits, and supplies, order by phone or email.*

Circle No. 75

Continued from page 90

Cutting pen blanks takes a turn for the better

I love turning my own pens, but don't do it as much as I would like because of the lengthy setup involved in ripping, center-drilling, and rounding pen blanks prior to turning. Woodcraft has simplified the process with its Pen Blank Cutter/Borer.



Like an elongated hole saw, this handy gadget cuts a ½"- diameter 2¾"-long pen blank, while simultaneously centering a hole in the blank. Two carbide-tipped cutters shape the exterior, and a 7mm brad-point bit (sold separately) cleanly bores the center hole.

After setting up my drill press fence, I found that I could crank out pen barrel after pen barrel quickly—in less than a minute each. And, though I did have a few blanks break in the process, it was far fewer than I'd break boring small pieces of square stock.

The Pen Blank Cutter/Borer even cut cleanly across the grain—something I've never been able to do before. The results were beautiful.

—Tested by Bob McFarlin

PRODUCT SCORECARD

Pen Blank Borer/Cutter

Performance	★ ★ ★ ★ ☆
Price	Cutter, $50; 7mm brad point bit, $3.50
Value	★ ★ ★ ★ ☆

Available from Woodcraft. Call 800/225-1153, or visit www.woodcraft.com

FORREST'S BUY ONE & SAVE - BUY MORE & SAVE MORE SALE

THRU 5/31/99

Buy any sawblade or dado in this ad and save 10% off the sale price! Buy additional sawblade(s) or dado(s) and save even more! 15%-20%!

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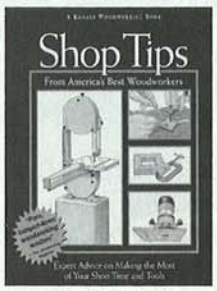
NEW WEEKDAY HOURS 9 AM - 6PM EST

EXCLUSIVE! FREE OFFER

$15 Value!



Over 600 Great Tips:

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It used to take years of trial and error to learn the tricks of successful woodworking. But not any more. Now there's *Shop Tips*, a book that's packed with over 600 woodworking tricks and techniques that will help you work faster and smarter immediately. 300 Great Shop Tips, Forrest Logo cap or 16 oz. nontoxic spray can of blade cleaner FREE with any saw blade or Dado listed and purchased from this ad. You must mention you saw this offer in WOOD Magazine when ordering.

Offer Expires May 31, 1999. One book per order.
ORDER NOW SUPPLIES ARE LIMITED.

FREE shipping only on new saw blades and dado items over $200 thru 5/31/99

FREE $45 in sharpening coupons with each order placed by 5/31/99

Mention Wood® Magazine to receive discount and free coupons and free shipping

Coupons valid thru 12/31/2000 and good on all makes of carbide blade and dado set sharpening.

WOODWORKER II— 6" – 7 1/4" – 14"

With this one ALL PURPOSE blade you can RIP & CROSSCUT 1"–2" ROCKHARDS and SOFTWOODS resulting in a **SMOOTH AS SANDED** surface. PLY-VENEERS of OAK and BIRCH will crosscut with NO BOTTOM SPLINTER at moderate feed rates.

- DOUBLE HARD and 40% STRONGER C-4 CARBIDE
- Ends blade changing
- Ends scratchy saw cuts
- Ends second-step finishing
- Ends cutting 1/16" oversize to allow for RESURFACING
- **BUY AND SHARPEN 1 BLADE INSTEAD OF 3**

5/8" holes, boring thru 1-1/4" add $7.50. Larger at Time Basis —Shipping $4.50

WOODWORKER II	LIST	SALE	10%	20%
14"X40TX1"	$215	$149	$134	$119
14"X30TX1"	$195	$139	$125	$111
12"X40TX1"	$183	$129	$116	$103
12"X30TX1"	$162	$119	$107	$ 95
10"X40TX1/8" or 3/32"	$156	$119	$107	$ 95
30T 1/8" or 3/32"	$135	$ 99	$ 89	$ 79
9"X40T	$146	$109	$ 98	$ 87
30T	$125	$ 99	$ 89	$ 79
*8-1/4"X40TX 3/32"	$136	$ 99	$ 89	$ 79
8"X40T 3/32"	$136	$ 99	$ 89	$ 79
30T	$115	$ 89	$ 80	$ 71
7-1/4"X30T 3/32"	$112	$ 69	$ 62	$ 55
**6"x40T 3/32"	$136	$ 89	$ 80	$ 71

*NEW for Sears & Makita Table Saws **New For Saw Boss

$21 VALUE — ***FREE 10" ORANGE PLASTIC BLADE RUNNER–CARRIER!*** SHIPPED WITH 6", 8" & 10" DADO SETS. HOLDS UP TO 10 BLADES, 5 PER SIDE ON CENTER BOLT OR DADOS.

DELUXE DADO-KING!

AS LOW AS $184 NET AFTER USING SHARPENING COUPONS

WORLD'S NO. 1 DADO - NO CHIP ON PLYS & MELAMINE

C-4 Carbide Tips — 4 on each chipper with special negative face hooks. Shims & 3/32" Chipper. Cuts 1/8" to 29/32" wide!!

	LIST	SALE	10%	15%
6" D. 5/8" Bore NEW	$299	$269	$242	$229
8" D. 5/8" Bore	$321	$289	$260	$245
10" D. 5/8" & 1" Bore	$389	$349	$314	$297
12" D. 1" Bore	$499	$449	$404	$382

(Bore up to 1-1/4" Add $25)

NEW "EASY-FEED" STANDARD DADO

For solid hard and soft woods only! (No plys, no melamine!) 8" D, with positive hook 24 tooth blades & 2 tooth chippers, and shims. Cuts 1/8" to 13/16" wide.

LIST	SALE	10%	15%
$249	$218	$196	$185

CHOPMASTER FOR SLIDING COMPOUNDS & MITER SAWS

New specs, 5° Neg. Pts. & flat, runs out less than .002 for perfect, tight, smooth, splinter-free miter joints.

TAKE EXTRA 10% – 20% OFF COMBO SALE!

NEW SIZES AVAILABLE	LIST	SALE
Delta Sidekick 6-1/2"x40Tx5/8"	$149	$ 99
Sears 8-1/4" & Delta 8-1/4"x60Tx5/8"	$170	$ 109
Hitachi 8-1/2"x60Tx5/8"	$179	$119
DeWalt 8-1/2" & Ryobi 8-1/2"x60Tx5/8"	$179	$119
Delta 9"x80Tx5/8"	$204	$129
Ryobi–Makita & all 10"x80Tx5/8"	$207	$139
DeWalt, Makita, B&D, Hitachi 12"x80Tx1"	$229	$149
Ryobi–Makita 14"x100Tx1"	$266	$189
Hitachi 15"x100Tx1"	$277	$199

For good general purpose cuts use Woodworker II 30T & 40T or Woodworker I. Use small stiffener where possible.

In Stock Blades made for Special Uses:
• Gang Saws • Panel & Scorer • Picture Frames (Miter-Master)
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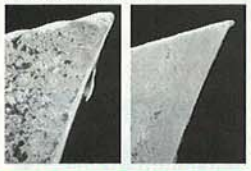

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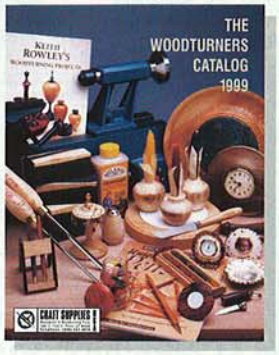

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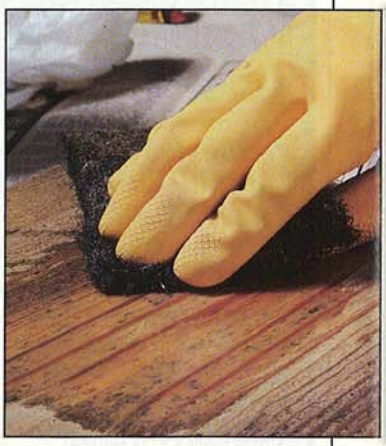
To bleach or not to bleach

I have recently stripped the finish off an old mantel clock. My problem is that the black finish directly on the clock's frame didn't all come out. Should I bleach the wood to remove all of the old finish? What are my options here?

—Brenda Miller, Jermyn, Pa.



For many antiques, Brenda, the color is some of the personality that separates your antique clock from a new piece of woodwork. So before proceeding, be sure that you want a new personality for that old clock.

When a large amount of the piece is covered with black, then it's probable that much of the finish is still there. You can remove black finishes with a good stripper. Some finishes will require quite a bit of elbow work. Use scrapers, medium-grade steel wool, and specially shaped sticks (for carved areas) to remove the gunk. Be sure to allow the stripper a few minutes to soften the finish before you begin scraping. Work small areas at a time. You may have to repeat the process several times if the finish is especially thick.

If the gunk is all off and some color remains, try using steel wool and mineral spirits to neutralize the leftover stripper and hopefully the remaining color.

When there's still some unnatural color, then two options remain: sanding and bleaching. You may be able to remove the very surface of your clock by sanding down to fresh unsaturated wood. Be careful to sand evenly, and with all of the chemicals that have been used recently on this wood, be sure to wear a dust mask.

If you don't want to sand your antique, then try bleaching the wood. The safest and easiest method (especially for beginners) calls for regular household bleach. Apply the bleach directly to the wood with a rag. If you're bleaching stained spots, carefully apply the bleach only to those stained areas with a cotton swab. The process can be repeated every half-hour or so, and will probably take many applications. Be sure to wear gloves and a mask when working with bleach.

Continued on page 96

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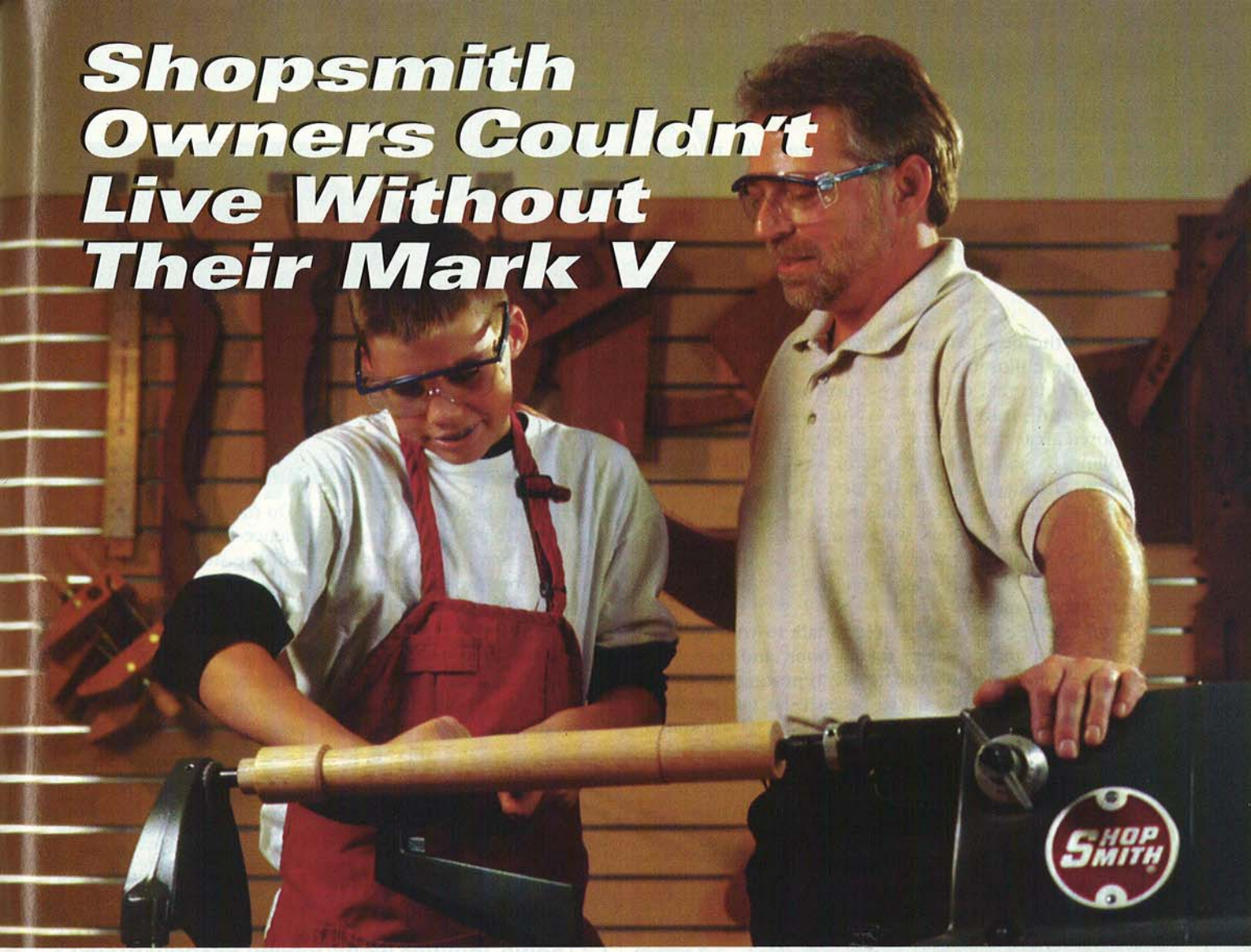

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FSD1

Continued from page 94

Scrolling for kids

As a kid, some of my favorite memories with my father were "helping" him build stuff. Now, my nine-year-old nephew is interested in scrollsawing (like his grandpa and uncle). Can you recommend some simple pattern books and any other tips geared toward beginning scrollers?

—Frank Schweigert, Blairsville, Pa.

Some of the best pattern books for easy scrollsawing, Frank, are children's coloring books. Pick out a book together, one that contains pictures with lots of subtle curves and straight lines. Avoid tight corners and enclosed areas that require start holes. After you're done scrolling, try painting the wood for some added fun.

Safety should always be the first thing on our minds when we teach children. Kids often are eager to jump right in, but as teachers we must ensure that nothing goes wrong when power tools and inexperience combine. Be sure to teach your nephew that working safely is an absolute must.

Frank, don't expect to be able to talk to your nephew about a tool and its safety for an hour, and then start. He'll need to get it in small doses, repeating often. Ask questions now and again to be sure he understands. When he's ready to try some cutting, both of you should keep your hands on the project. Do most of the steering at first—this still gives him experience for the feel. Over time, let him do more and more of the steering until he seems comfortable doing it himself. Start easy and before long he'll be making his own puzzles.

Children also have short attention spans, so limit time on a scrollsaw to a few minutes at a time, or until he seems distracted and begins making uncharacteristic mistakes. Scrollsaws make a good introduction to woodworking. Let's get 'em hooked early!

Continued on page 103

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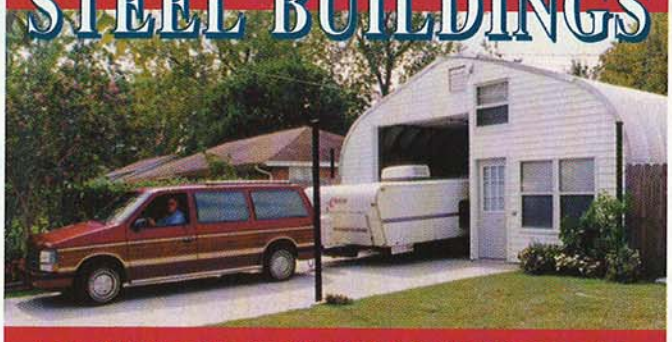

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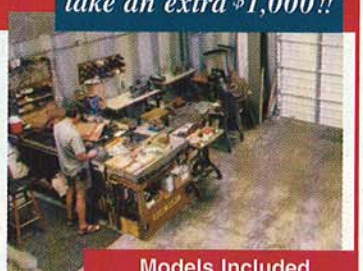

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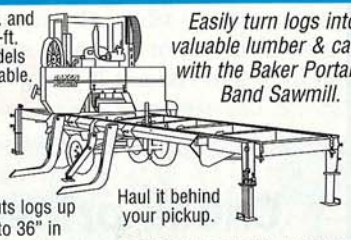

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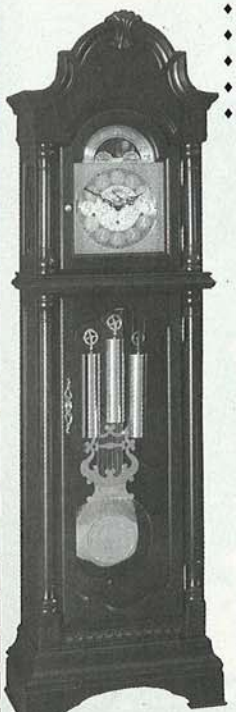

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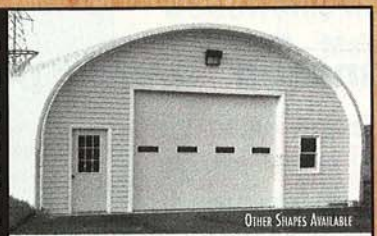

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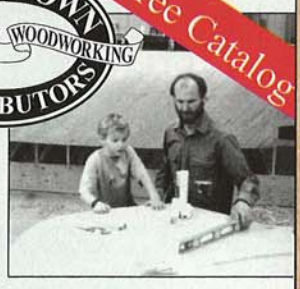

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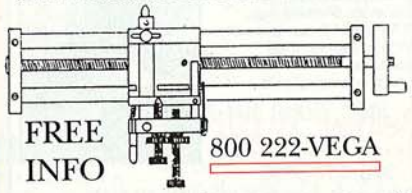

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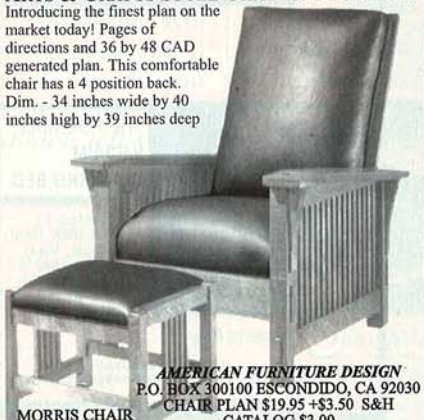

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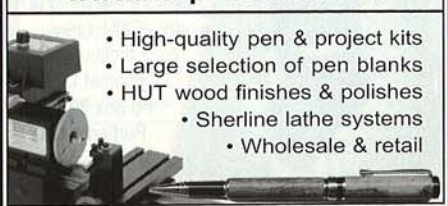

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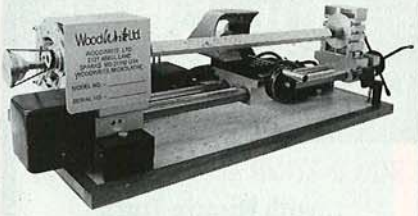

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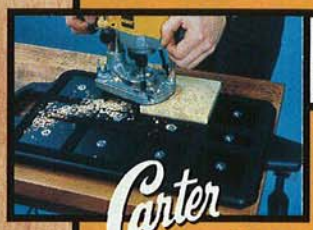

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ASK WOOD

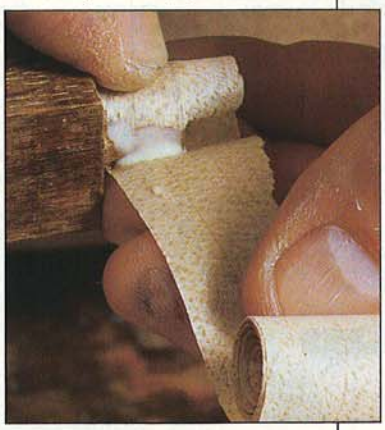
Continued from page 96

Some sticky options for gluing wobbly legs

I have an old walnut sewing stand used as a side table in the living room. The legs are turned and are attached straight up into the underside of the top structure. The legs are quite loose but not damaged, and they do not slop around in their sockets. What type of glue should I use?

—Rod Cole, Lexington, Mass.

You actually have several options, Rod, depending on your goals. For immediate (but temporary) relief, you can use a joint-swelling product—but only if the joint won't come apart. If the joint can be separated, you should reglue it.



Hide glue will give you an authentic repair for a prized antique, but it has a long working time, and you'll have to wait overnight for the glue to set. Hide-glue joints also won't take much strain.

Yellow woodworker's glue offers increased durability and strength, cleans up easily, and has 5-10 minutes working time—ample for most projects. Yellow glue, however, (and hide glue, too) works best in joints that fit tightly. Your "loose" table legs will get looser still when you clean off the old adhesive (a necessary step no matter what glue you use). The sockets will get larger and the spindles smaller because you'll remove some of the wood with the old glue. So you may need to build up the diameter of the spindle ends with paper-thin bands of wood as *shown left* (hand plane shavings work well).

Polyurethane glue or epoxy may be your best choice if you don't plan to disassemble the table in the future (to refinish it, for example). Durable and waterproof, polyurethane glue has a working time of 30 minutes, and it expands somewhat when curing, so it will fill extremely small gaps in the joint. Epoxy mixes up to a thick consistency and fills wider gaps, has an open time from 5 minutes to 12 hours depending on the formulation, is waterproof, and sets up hard.

Whatever glue you use, first remove the legs—with a minimum of twisting. If the joint is glued with hide glue, use a heat gun to soften it, but don't scorch the wood. Next, remove the old glue by sanding or scraping. Put a light coat of glue on both surfaces of the joint, clamp, and if using hide or yellow glue, wipe off the excess with a rag dampened with water. With polyurethane glue, don't wipe off the excess—you'll have a sticky mess. Clean it up after it hardens, with a sharp chisel, bevel side down. If using epoxy, remove the excess with a rag dampened with acetone.

Continued on page 106

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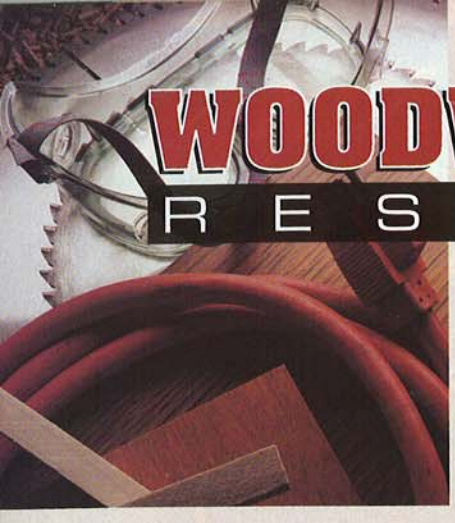

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Circle No. 1285

ASK WOOD

Continued from page 103

Get nuts about stain

I've heard that it's possible to make stains from black walnuts. If so, how do you make a liquid from a nut, and what color will you get?

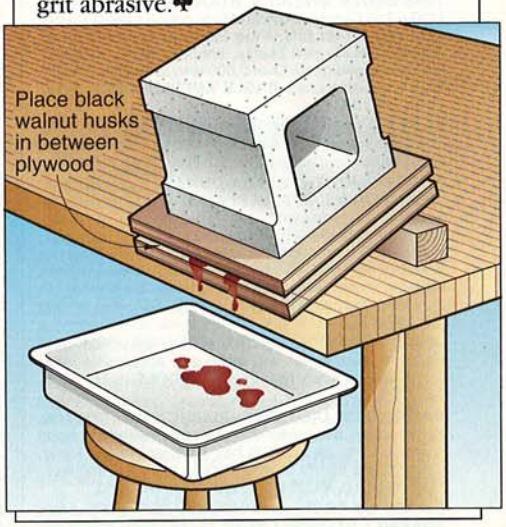
—John Tygrett, Bolt, W. Va.

Actually, John, woodworkers have been creating stains from black walnut husks for hundreds of years. These husks contain pigments that naturally color wood.

First, get a lot of green, not ripe, black walnuts, and squeeze them to extract their juice. Unless you have a walnut press, peel the husks, put these husks between two pieces of sealed plywood (plywood with finish on it to keep the extract from soaking in), and set some concrete blocks on top. Angle the walnut sandwich so the extract flows into a container. After a few days you should have a small amount of liquid. Let it evaporate, and a small amount of crystal will remain.

You should also know that a similar product called "Vandyke crystals" can be bought. It's available through woodworking supply stores, and cost about $6 for enough crystals to make a pint of stain.

When you're ready to use the crystals, dissolve them in a small amount of boiling water. Add water until you're happy with the tone. At its lightest, you'll get a golden oak hue, but this stain can go all the way to black. Homemade walnut stain applies like any water-base dye, except that when applied in a highly concentrated form (for darker tones) it's thick and sludgy. Later, sand any raised grain with 320-grit abrasive.



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JET EQUIPMENT & TOOLS

DC-1200W	2 hp white dust collector	399
JJ-6CSXW	6" enclosed stand white jointer	499
JWP-15CSW	15" white enc. stand planer	1199
JWBS-14CSW	14" white enc. bandsaw	569
JTAS-10X650-WI	3 hp white cabinet saw/accys	1399
JWTS-10CWPFX	1 1/2 hp contractors saw w/accys	795
JPM-13	13" planer moulder	795
JWS18H0	1 1/2" hpshaper 1/2" & 3/4"spindls	524
JML-1014	mini lathe	324

BOSCH

1275DVS	3" x 24" vs dustless belt sander	213
1276DVS	4" x 24" vs dustless belt sander	228
1278VSK	compact belt sander kit	128
1295DH	5" random orbit sander	82
1584AVSK	clic barrel handle jig saw, vs w/case	149
1587AVSK-50	50th anniv. jig saw kit	156
1587AVSK	top handle jig saw, var sp w/case	149
1613EVS	2 hp var sp plunge router	196
1615EVS	3 1/4 hp plunge router	298
1617	1 3/4 hp router	158
1617EVS	2 hp electronic var. speed router	179
1618	1 3/4 hp D-handle router	169
3107DVSK	5" random orbit sander with case	114
3315K	12v crdls t handle w/2 bat, cs & chrg	158
3615K	14.4v cdls drill kit w/2 batteries	178
3725DVS	5" dustless vs random orbit sander	144
3727DVS	6" dustless vs random orbit sander	148
3912	12" compound miter saw	349
3915	10" slide compound miter saw	498

BESSEY

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24	2 hp shaper w/1/2" & 3/4" spindle	1049
44	14" band saw, 1 hp, enclosed stand	675
54	6" jointer w/enclsd stand	559
64A	1 1/2 hp tbl saw w/accu fence	795
66	3 hp, 1 ph 10" t.a. saw w/50" fence	2025
66	5 h p, 1 ph 10" t.a. saw w/50" fence	2125
75	3 hp dust collector	695
84	combo belt & disc sander	495
471	1 hp dust collector	199

EXCALIBUR

EXBC	overarm bladecover	349
EXSLT 40	sliding table with 49" crosscut cap	509
EXSLT 60	sliding table with 62" crosscut cap	669

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EZ2	18 gauge nail/staple kit	109
0249NK	18 gauge brad nailer 3/4"-2" w/case	108
0232NK	18 ga brad kit 3/8"-1 1/4" with case	68
0566T	angle finish nailer 1"-2 1/2"	202
0626NK	18 gauge narrow crown stapler 3/8"-1 " with case	103
0638S	narrow cr stapler 3/4"-1 1/2"w/cs	179
ITM/ART	0241 & 0626 in one case	119

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99-55-13	Fein turbo vac II	248
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HT20VSK	multi rotary tool w/cs & accys	48
ML618	18" wood mini lathe	199
OSS450	oscillating spindle sander	149
RE185	2 1/4 hp fixed base vs router	109
SC165VS	16" vs scroll saw	164

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C7SBK	7 1/4" circ. saw w/case	104
C8FB2	8 1/2" slide compound miter saw	458
C10FC	10" compound miter saw	198
C10FS	10" slide compound miter saw	558
DN10DYK	9.6V cdls right angle kit	168
DS14DV-G	14.4v kit w/2 bat & free Gerber tool	209
M12V	3 hp var speed plunge router	196
NR83A	full head strip nailer, 2 - 3 1/2 cap	379
NV83A	coil nailer, 2" to 3 1/4" capacity	379
P20SB	3 1/4" planer	89

freud

EB100	edge bander	214
FC107	7 pc carbide forstner bit set	89
JS100	biscuit joiner	96
JS102	biscuit joiner w/var. angle fence	118
FT2000E	3 hp plunge router	184
F410	10" x 40t quiet blade	48
F810	10" x 80t quiet blade	73
LM72M010	10" x 24t flat top rip blade	36
LU82M010	10"x 60t crosscut/rip blade	44
LU84M010	10" x 50T combo blade	42
LU85R010	10" x 80T red crosscut blade	58
LU92M010	10" x 60 teeth TCH laminate	59
LU98M010	10" x 80 teeth TCH lam & wood	67
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SD308	8" safety dado with case	116
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SD608	8" dial-a-width dado	198
TK406	10" x 60 teeth thin kerf blade	36
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TK906	10" x 50 teeth thin kerf blade	34
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6233DWAE	14.4v cordless kit w/2 batteries	199
6333DWAE	14.4v 1/2" cordless kit	209
BO5001	5" random orbit sander	67
LS1013	10" slide dual comp miter saw	558
N1900B	3 1/4" planer	146

Milwaukee

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37-070	6" variable speed bench jointer	249
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DW359K	7 1/4" circular saw w/case	128
DW378G	7 1/4" framers saw	168
DW420	5" random orbit sander, psa	62
DW421	5" dstls rndm orb sander, velcro	67
DW423	5" vs dustls random orbit sander	79
DW431	3" x 21" dstls belt sander var sp	185
DW443	6" rt angld var sp ROS sanderw/h&l	132
DW610	1 1/2 hp router, 9 amp	144
DW621	2 hp vs dstls plunge router	198
DW677K	3 1/4 hp planer kit	149
DW682K	biscuit joiner kit	159
DW705	12" miter saw w/carb blade	358
DW708	*new* sliding comp. miter saw	644
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DW744	10" portable table saw	499
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DW972K2	12v crdls kit/w battery & cs	179
DW972KS2	12v combo drill & saw kit	274
DW991K2	DW991K with two batteries	206
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DW991KL2	14.4v drill, circ saw, flashlight kit	349
DW991KS2	14.4V cdls drill & circ saw kit	338
DW995K	18V 1/2" drill w/batt, chrgr & cs	228
DW995KC2	18v drill & recip saw combo kit	395
DW995KS2	18V drill & saw combo kit	377
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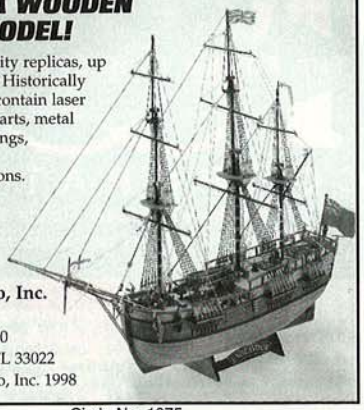

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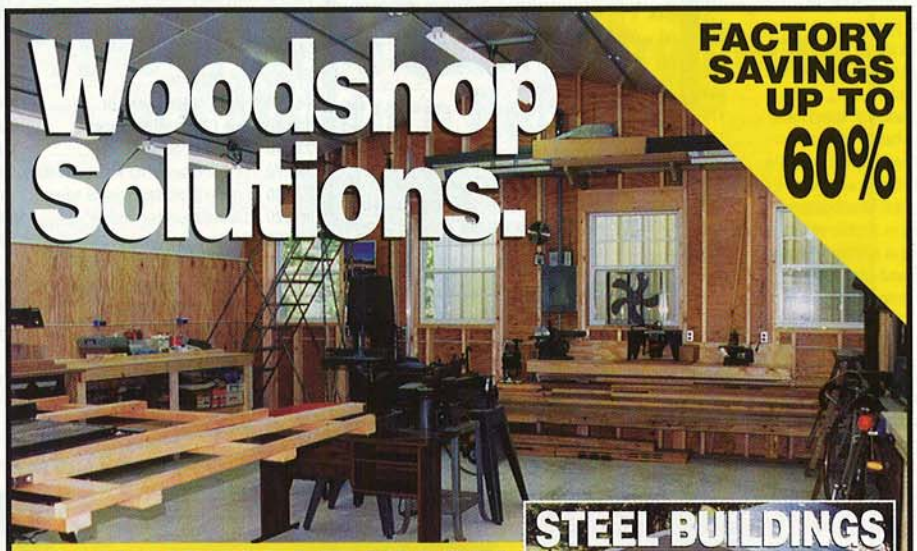

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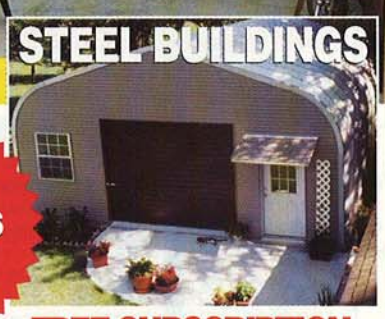

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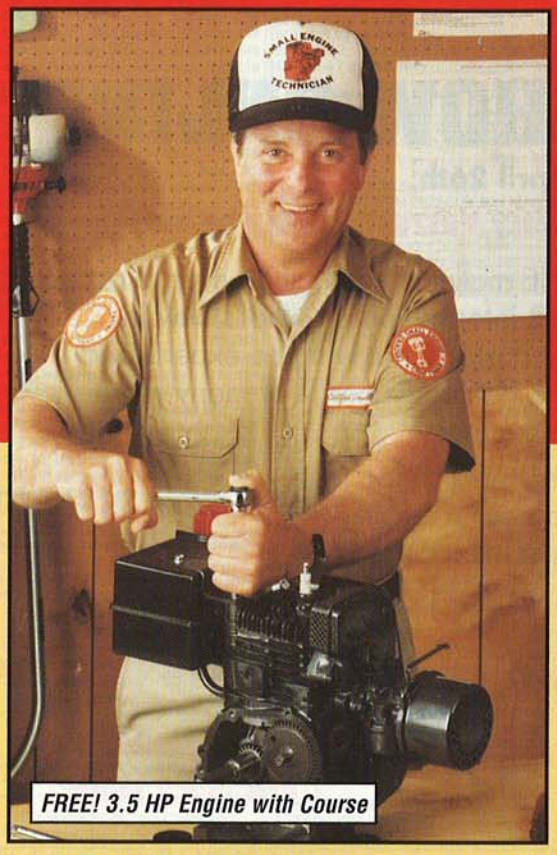

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WOOD ANECDOTE

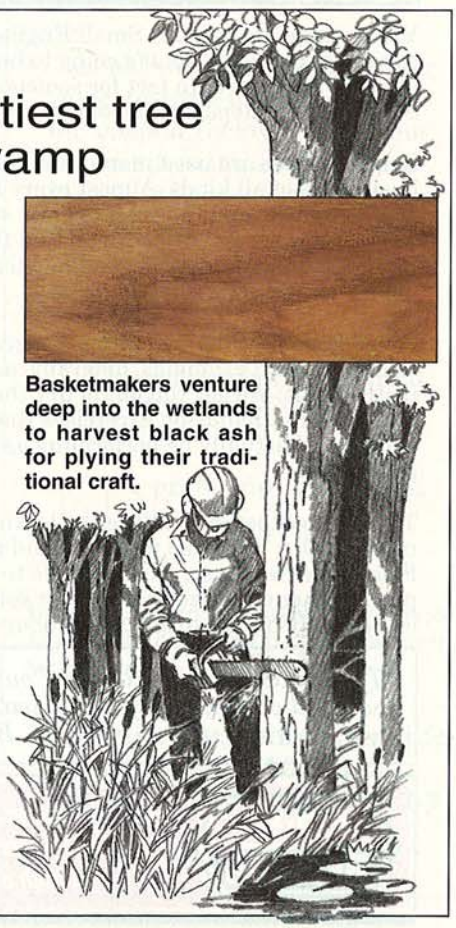
BLACK ASH

The thirstiest tree in the swamp

Northwoods basketmakers know black ash (*Fraxinus nigra*) well. In Maine, for instance, this tree of the swamps was cut, pounded, and peeled into thin, strong, bendable strips to form the state's field-worthy potato baskets. Portaging canoeists, hunters, and trappers traditionally hunkered under the load of reliable packbaskets made of "basket" ash.

Although never a cherished target of lumbermen because of its comparatively small size, the black ash rates as unique because its dark-brown heartwood occupies nearly the entire girth of its trunk, leaving little room for lighter-colored sapwood. And in its springtime rush to grow, the tree puts on a layer of large-pored earlywood. It's this band that cleanly cleaves from the latewood, providing the thin, tough, and durable strips that craftsmen turn into baskets, woven chair seats, and once upon a time, the hoops that held together the staves of wooden barrels.

Native to the northern wetlands, the black ash shares its soggy habitat with other water-loving trees, such as tamarack and black spruce. Few trees, though, can match its aggressiveness in sending out a massive root system. A fierce competitor, the tree sucks up water and nutrients at a rate that, over the long run, other trees can't match. So the black ash has few close neighbors. In fact, the tree's great demand for water eventually leaves it high and dry. Swamps occupied for decades by black ash become shallower, creating fertile conditions for successor trees like basswood, elm, and red maple that can't stand getting their "feet" wet.



Basketmakers venture deep into the wetlands to harvest black ash for plying their traditional craft.

Illustration: Jim Stevenson

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DELTA TOOLS

Model	Description	List	Sale
31-750	NEW Bench Random Orbit Sander		Sale 199
28-150	NEW 9" Bench Band Saw		Sale 155
50-860	850 CFM Air Cleaner		Sale 239
31-695	6" Belt/9" Disc Sander	441	299
23-710	Sharpening Center	217	145
31-460	4" Belt/Disc Sander	198	119
40-560	16" 2 speed Scroll Saw	230	129
40-540	16" var/spd Scroll Saw	249	159
11-990	12" Bench Drill Press	255	184
11-090	32" Radial Bench Drill Press	405	279
43-505	1/2" Bench Router/Shaper	398	299
22-540	12" Bench Top Planer		Sale 259
22-560	12-1/2" Planer w/ extra knives		329
36-865	Versa Feeder Stock Feeder		249
36-220	10" Compound Mitre Saw	294	199
36-240	10" Sliding Mitre Saw	589	439
37-070	6" v/spd Bench Jointer	351	265
14-650	Hollow Chisel Mortiser	380	249
17-900	16-1/2" Floor Drill Press	490	329
17-920	NEW Mortise Chisel Kit		Sale 59
36-285	8-1/4" Builders Saw w/ stand		Sale 275
34-555	Sliding Table	487	359
36-250	10" Slide Compound Saw	825	455
31-780	Oscillating Spindle Sander	253	194
31-780K	31-780 w/ 31-781 spindle set		209
46-700	12" Wood Lathe	575	465
40-650	Q3 18" Scroll Saw		Sale 389
36-905	30" Unifence	346	259
36-906	50" Unifence	444	309
36-444	10" Contractors Table Saw		Sale 579
37-195	NEW 6" Professional Jointer	625	539
33-830	NEW 10" Radial Arm Saw	851	729

The following tools have a $50.00 rebate ! Price shown is before rebate. Rebates valid thru 3/31/99.

36-455	10" Contractors Table Saw w/ 30" unifence, cast iron wing, 34-914 table board, & carbide blade	Sale	849
22-675	DC380 15" Planer	Sale	1175
28-275	14" Band Saw 3/4 HP	Sale	595
28-280	14" Band Saw 1 HP motor with enclosed stand	Sale	739
28-270	14" Band Saw 1 HP w/ 50-274 mobile base, 28-855 rip fence, & 28-266 cool blocks	Sale	849
31-280	Sanding Center w/ stand	Sale	789
37-190	6" Deluxe Jointer	603	445

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50-850	1-1/2 HP, 1200 CFM	Sale	285
50-851	2 HP, 1500 CFM	Sale	489

MILWAUKEE TOOLS

6527	NEW Sawzall with case	343	169
6537-22	6527 w/quick lok blade change	224	179
0407-22	12V Drill w/kyls chuck&2 batt	380	175
0224-1	3/8" Drill 4.5 amp magnum	236	132
0234-6	1/2" Drill 4.5A mag 0-850 rpm	255	134
0235-1	1/2" Drill w/keyless chuck	255	139
0244-1	1/2" Drill 4.5A mag 0-600 rpm	255	139
0222-1	3/8" Drill 3.5 amp 0-1000 rpm	213	124
0228-6	3/8" Drill 3.5 amp 0-1000 rpm	207	109
0375-1	3/8" close quarter Drill	255	148
0379-1	1/2" close quarter Drill	288	165
6546-6	Screwdriver 200 & 400 rpm	150	89
6547-6	6546-6 w/bits,1/4" chuck & cs	185	109
5399	1/2" D-hdle Hammer Drill Kit	356	219
5397-1	3.8" v/ spd Hammer Drill Kit	275	145
5371-6	1/2" v/ spd Hammer Drill Kit	360	194
3107-6	1/2" v/spd right angle Drill Kit	411	234
6142	4-1/2" Grinder w/cse & acc.	224	132
6490-6	10" Mitre Saw	496	269
6491	6490 w/ carbide blade & bag	594	345
6494-6	10" Compound Mitre Saw	585	319
6266-6	Top Handle Jig Saw	315	159
6496-6	10" Slide Compound Saw	1050	569

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Item	Description	Teeth	List	Sale
LU72M010	Gen Pur. A.T.B.	10" 40	69	42
LU82M010	Cut-off	10" 60	93	32
LU84M011	Comb	10" 50	78	45
LU85R010	Super Cut-off	10" 80	115	68
LM72M010	Ripping	10" 24	69	38
LU73M010	Cut off	10" 60	84	49
LU87M010	Thin Kerf	10" 24	72	45
LU88M010	Thin Kerf	10" 60	88	49
LU98M010	Ultimate	10" 80	128	68
LU91M010	Compnd Mitre	10" 60	88	54
F410	Quiet Blade	10" 40	95	54
SD308	8" Dado - Carbide		230	119
SD508	8" carbide w/case & shims		344	172
FB100	16 piece Forstner Bit Set		338	194
94-100	5 pc. Router Bit Door System		320	169
FT2000E	Plunge Router		Sale	185

HITACHI TOOLS

C8FB2	8-1/2" Slide Compound Saw	1169	449
C10FS	10" Slide Compound Saw	1627	579
C15FB	15" Mitre Saw	1346	645
NV45AB	Coil Roofing Nailer	935	379
NT32AE	NEW Pinner 5/8" - 1-1/4"	Sale	85
NT50AE	NEW Pinner 3/4" - 2"	Sale	125

MAKITA TOOLS

Model	Description	List	Sale
5090DW	3-3/8" Saw Kit 9.6 volt	280	159
DA391D	3/8 angle Drill 9.6V	166	114
DA391DW	3/8" angle Drill Kit 9.6V	341	175
6095DWE	9.6 volt Drill Kit w/2 batt	Sale	125
6095DWLE2	6095DWE w/flashlight	Sale	139
632007-4	9.6 volt Battery	47	30
632002-4	7.2 volt Battery	39	28

NEW 18 VOLT MAKITA TOOLS

6343DWAE	1/2" Drill Kit	Sale	249
5620DWA	6-1/2" Circular Saw Kit	Sale	259
DK1016	1/2" Drill & 6-1/2" Saw combo kit	Sale	389

CORDLESS DRILLS WITH 2.0 AMP HIGH CAPACITY BATTERIES

6213DWAE	12V 3/8" Drill Kit	325	169
6233DWAE	14.4V 3/8" Drill Kit	358	205
9900B	3"x21" Belt Sander w/bag	347	165
9924DB	3"x24" Belt Sander w/bag	360	175
N1900B	3-1/4" Planer with case	263	142
1912B	4-3/8" Planer	352	205
N9514B	4" Disc Grinder 4.6 amp	118	65
DA3000R	3/8" Angle Drill	355	185
2708W	8-1/4" Table Saw	637	295
6405	3/8" Drill Rev. 0-2100 rpm	115	65
6013BR	1/2" Drill Rev. 6 amp	270	159
9401	4" x 24" Belt Sander w/bag	458	219
5007NBK	7-1/4" Circ Saw w/ case	250	125
LS1011	10" Slide Compound Saw	995	429
LS1211	12" Slide Compound Saw	1620	695
3901	Plate Joiner Kit	376	159
3612C	3 HP Plunge Router	492	259
LS1040	10" Compound Miter Saw	460	259
LS1013	10" Dual Compound Slide Miter Saw	1088	599
BO5010	5" Random Orbit Sander	142	72
LS1220	NEW 12" Compound Miter Saw	379	
9227C	NEW 7/9" Polisher	350	195
SJ401	NEW 16" Bench Scroll Saw	300	175
2702	NEW 8-1/4" Table Saw	Sale	299
2703	NEW 10" Table Saw	Sale	319

SENCO AIR NAILERS

SFN1+	Finishing Nailer 1 - 2" w/ cs	448	299
SNS45	NEW Stapler 7/16" crown, 1" - 2"	540	379
SLP20	Pinner w/cs 5/8 -1-5/8"	422	199
SKS	Stapler 5/8 - 1-1/2"	390	279
SN70	Framing -Clip Hd 2 - 3-1/2"	725	449
SN65	Framing -Full Hd 2 - 3-1/2"	709	379
SN600	NEW Framing 2 - 3-1/2"	699	369
SFN40	Finish Nailer 1-1/4 - 2-1/2	569	359

NEW Accuset Nailers by SENCO

A100LS	Finish Stapler 1/2" - 1"	180	119
A150LS	Finish Stapler 1/2" - 1-1/2"	220	149
A125BN	Brad Nailer 5/8" - 1-1/4"	160	99
A200BN	Brad Nailer 5/8" - 2"	215	139

BOSTITCH AIR NAILERS

Model	Description	List	Sale
N80S-1	Stick Nailer	Sale	359
RN45	Coil Roof Nailer 3/4 - 1-3/4	845	359
N60FN-2K	Finishing Nailer w/ case	557	269
BT35-2K	Brad Tacker 5/8" - 1-3/8" with case, oil, & brads	279	125
MIIIFS	Flooring Stapler 15 gauge	902	539
S32SX-1K	Finish Stapler-1/2" - 1-3/8" with case & oil	269	139

JORGENSEN ADJUSTABLE HANDSCREWS

Item#	Jaw Length	Opening Capacity	List	Sale	Box of 6
#0	8"	4-1/2"	20.35	12.10	66.95
#1	10"	6"	23.30	12.90	71.95
#2	12"	8-1/2"	26.75	14.90	83.95
#3	14"	10"	33.85	18.55	105.75

PONY CLAMP FIXTURES

Model	Description	List	Sale	Lots of 12
50	3/4" Black Pipe	15.45	8.50	94.00
52	1/2" Black Pipe	12.65	6.95	79.00

PANASONIC CORDLESS

EY6100FQKW	12V 3/8" Drill kit w/ 2 Ironman batteries, 15 min. charger, & case	379 179
EY6230FQKW	NEW 15.6V Drill Kit with 2 Ironman batteries, 30 minute charger & case	425 209
EY3503FQWKW	5-3/8" 12V Wood Cutting Circular Saw Kit	500 259
EYC103	EY6100FQKW drill, EY3503FQW saw, 2 batteries, 15 minute charger, and case	Sale 299

BIESEMEYER FENCES

B-50	50" Commer. Saw	443	325
T-SQUARE 52	52" Homeshop	360	275
T-SQUARE 40	40" Homeshop	335	255
T-SQUARE 28	28" Homeshop	325	245

AIRY AIR NAILERS

Model	Description	List	Sale
0241SK	Brad Nailer 3/8" - 1-9/16"	180	98
0626SK	1/4" Crown Stapler 3/8" - 1"	194	98

Above nailers come w/case, fasteners, oil & wrenches

0241/0626
0241 Brad Nailer, 0626 Stapler, case, fasteners, oil, & wrenches
Super Sale 129.95

STABILA LEVELS

25010	10" die cast Torpedo Level	43	19
24640	24" Level w/ hand holes	62.20	47
24670	48" Level w/ hand holes	79.70	59

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DEWALT TOOLS

Model	Description	List	Sale
DW309K	Recipro Saw 10 amp	318	179
DW378G	7-1/4" Framer's Saw	210	169
DW222	3/8" Drill, 0-1200 rpm	184	105
DW231	1/2" Drill, 0-850 rpm, 7.0 amp	240	129
DW236	1/2" Drill, 0-850 rpm, 7.8 amp with keyless chuck	264	149
DW124K	1/2" right angle Drill	590	329
DW321K	Top Handle Jigsaw Kit	300	164
DW364	7-1/4" Circ. Saw w/brake	294	162
DW610	1-1/2 HP 2 handle Router	266	149
DW411K	1/4 sheet Palm Sander w/ cse	88	58
DW682K	Biscuit Joiner with case	448	169
DW705	12" Compound Mitre Saw	734	359
DW621	2 HP Plunge Router	400	218

DW621 comes with Free DW6956 fine height adjuster !

DW675K	3-1/8" Planer with case	292	164
DW677K	3-1/4" Planer w/ case	268	155
DW431	3 x 21 v/spd Belt Sander	338	188
DW421	5" Palm Ran. Orb Sander	144	74
DW423	Palmgrip Random Orbit Sander - variable speed	170	94

DW421 & DW423 come with Free DW4317 case !

DW673K	Laminate Trimmer Kit	364	188
DW272	Drywall Gun, 0-4000, 6.3 amp	160	95
DW276	Drywall Gun, 0-2500, 6.5 amp	160	95
DW935K	14.4V 5-3/8" Trim Saw Kit	444	237

DEWALT CORDLESS DRILLS

DW972K-2	3/8"variable speed w/ two 12V XR batteries	362	184
DW991K-2	3/8"variable speed w/ two 14.4V XR batteries	415	209
DW994KQ	1/2" variable speed w/ one 14.4V XR batteries	458	239

Above drill kits come w/ charger & steel case !

DW991KS-2	DW991K drill, DW935 trim saw, 2 XR batteries & case	Sale	345

DEWALT 18 VOLT CORDLESS TOOLS

DW933K	NEW Jigsaw Kit	468	269
DW938K	Recipro Saw Kit	520	269
DW995K	1/2" Drill Kit w/ 1 battery	428	229
DW995K-2	1/2" Drill Kit w/ 2 batt.	Sale	259
DW997K	1/2" Drill/Hammer Drill Kit	454	249
DW936K	5-3/8" Saw Kit	458	249
DW995KS-2	DW995K Drill, DW936 Saw and case	Sale	385
DW991KC-2	DW991K 14.4V drill kit, DW937 14.4V recipro saw,& case		375
DW995KC-2	DW995K 18V drill kit, DW938 18V recipro saw, & case		395
DW997KC-2	DW997K 18V drill kit, DW938 18V recipro saw, & case		419

DEWALT BENCH TOP TOOLS

DW708	12" Dual Compound Slide Mitre Saw	Sale	649
DW788	20" Scroll Saw	Sale	469
DW733	12" Planer w/ extra blades	Sale	399
DW744	10" Portable Table Saw	Sale	499
DW756	NEW 6" Bench Grinder	164	75
DW758	NEW 8" Bench Grinder	184	115

NEW DEWALT VACUUM CLEANERS

DW792	15 gallon	Sale	279
DW795	20 gallon	Sale	399

BOSCH

Model	Description	List	Sale
1587VS	Top Handle "CLIC" Jig Saw	292	139
1587AVSC	1587VS Saw Kit with case and *New* Progressor blades	Sale	149
1584VS	Barrel "CLIC" Jig Saw	288	149
	Bosch Metal Case for above Jig Saws		24
	Bosch 30 blade assortment for Jig Saws		29.99

1584VS or 1587VS
with steel case and 30 Bosch blades Sale 175

1295DH	5" Random Orb Palm Sndr	145	89
1274DVS	3"x21" v/spd Belt Sander	301	175
1278VSK	1-1/2"x12" Belt Sander	218	129
1275DVS	3"x24" v/s Belt Sndr	379	219
1276DVS	4"x24" v/s Belt Sndr	408	229
1194VSR	1/2" v/ spd Hammer Drill	272	155
1194VSRK	above Drill w/ case	303	169
1613EVS	2HP v/s Plunge Router	369	199
1615EVS	3 HP v/s Plunge Router	536	305
1634VSK	Recip Saw 10.5 amp	335	185
3315K	12V T-handle Drill Kit	345	159
3615K	14.4V Drill Kit	354	174
3107DVS	5" Random Orbit Sander	165	98
3107DVSK	3107DVS with case	195	115
3725DVS	5" Random Orbit Sander	256	145
3727DVS	6" Random Orbit Sander	266	149
3915	10" Slide Compound Saw	1050	499
3912	NEW 12" Cmpnd Mitre Saw	638	349
11224VSR	7/8" SDS Rotary Drill	404	229
1703AEVS	5" Grinder - 8.5 amp	245	145

The NEW Bosch Routers

1617	1-3/4 HP Router - 2 handle	Sale	169
1617EVS	2 HP Router w/ variable speed - 2 handle	Sale	189
1618	1-3/4 HP Router - "D" handle	Sale	179

JDS AIRTECH AIR CLEANERS

Model	Description	List	Sale
750	12"x24"x28" 1/4 hp 200 CFM - 750 CFM	Sale	249
8-12	20"x24"x44" 1/3 hp 800 & 1200 CFM	Sale	479

RYOBI SPECIALS

RE600	3 HP Plunge Router v/spd	500	235
BE321	3" x 21" v/spd Belt Sander	310	139

Above sander comes with sanding frame

WDS1600	16" x 32" Drum Sander	980	569

Above sander comes with stand

JM80K	Plate Jointer with case	218	99

JET TOOLS

JJ60S	6" Jointer - open stand	Sale	429
JJ6CSX	6" Jointer - closed stand	Sale	489
JJ8CS	8" Jointer - closed stand	Sale	1189
JWP124P	12" Benchtop Planer	Sale	299
JWBS14OS	14" Band Saw 3/4 HP - open stand	Sale	479
JWBS14CS	14" Band Saw 1 HP - closed stand	Sale	545
JWTS10JF	10" Contractor Table Saw with 30" Jet fence 1-1/2 HP	Sale	549
JWTS10CWPF	10" Contractor Table Saw with 30" Exacta fence 1-1/2 HP	Sale	769
JTAS10X501	10" Tilting Arbor 3 HP Table Saw with 50" Exacta fence	Sale	1399
JDP17MF	16-1/2" Drill Press 3/4 HP - 16 speed	Sale	449
DC-650	Dust Collector, 1 HP, 650 CFM	319	219
JWP-15HO	15" Planer with stand	1699	1229

PORTER CABLE

9444	Profile Sander Kit	220	99
9444VS	Var/spd Profile Sander Kit	207	119
690	1-1/2 HP Router 8 amp	278	149
6931	Plunge Router Base	139	85
693PK	690 and 6931 plus case	Sale	199
9690	690 Router with case	Sale	159
691	1-1/2 HP Router D-handle	303	168
693	1-1/2 HP Plunge Router Base	338	184
697	1-1/2 HP Router/Shaper	418	235
698	Heavy Duty Shaper Table	238	135
352VS	3x21 v/s Belt Sander w/bag	321	175
9352VS	Above sander with case	Sale	189
360	3"x24" Belt Sander w/ bag	397	214
360VS	360 Sander w/ variable speed	429	229
362	4"x24" Belt Sander w/ bag	412	225
362VS	362 Sander w/ variable speed	446	239
9125	3-1/4" Planer Kit w/ case	250	145
505	1/2 sheet Pad Sander	249	139
330	Speed Block Sander 1/4 sheet	120	68
556	Biscuit joiner w/ 5556 fence	Sale	135
557	Plate Jointer with tilt fence. Includes 2" & 4" blades for use with standard & face frame plates	400	199
5563	Face frame plates for 557		7.99
7519	3-1/4 HP Router 2 Handle	469	258
7518	3-1/4 HP 5 speed Router	534	289
7539	3-1/4 HP v/spd Plunge Router	534	295
7310	5.6 amp Laminate Trimmer	176	104
97310	Laminate Trimmer Kit comp	336	194
7335	5" Random Orbit Sander	254	139
97355	7335 w/ case & dust pick-up	274	149
7336	6" Random Orbit Sander	259	145
97366	7336 w/ case & dust pick-up	284	159
332	Palm Grip Rndm Orb Sander	133	59
333	above sander with dust bag	148	65
333VS	Random Orbit Sander - variable speed	150	85
334	333 Sander with PSA pad	148	65
335	Palmgrip Random Orbit Sander with dual flip pad	Sale	85
310	Production Lam. Trimmer	270	154
347K	7-1/4" "Framers" Circ Saw with plastic case	250	129
743K	7-1/4" "Framers" Circ Saw with case - left hand version	250	129
9737	Tiger Recipro Saw	307	159
9543VS	NEW Top Handle Jig Saw	300	169

New Porter Cable Cordless Nailers !

CDA250	Angle Finish Nailer 1-1/4" to 2-1/2"	500	279
CFN250	Finish Nailer 1" to 2-1/2"	500	279
CMS200	Medium Crown Stapler 1" to 2"	500	279

Porter Cable Pneumatic Nailers

BN125	Brad Nailer -18 ga. 5/8"- 1-1/4"	144	89
BN200	Brad Nailer -18 ga. 3/4"-2"	238	128
FN250A	Finish Nailer -16 ga. 1"-2-1/2"	362	185
DA250A	Nailer -15 ga. 1-1/4"-1-1/2"	412	215
FC350	Framing Nailer - clipped head	558	289
FR350	Framing Nailer - round head	558	289
RN175	Roofing Coil Nailer	504	289

CFBN125 BN125 nailer, CF1400 compressor and 25' air hose
Sale 259.00

Porter Cable Compressors

CF1400	1 HP, 4 gal. Pancake	Sale	195
CF1540	1-1/2 HP, 4 gallon Side Stack	Sale	305
CF2400	2 HP, 4 gal. Side Stack	Sale	325
CF2020	2 HP, 20 gallon wheeled	Sale	425

Porter Cable Cordless Drills

9862	12V Drill Kit w/ 2 batteries	382	149
9862F	9862 Drill Kit with flashlight	Sale	159
9872	14.4V Drill Kit w/ 2 batteries	424	185

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A fire truck for father

Dale Smith, a woodworker and former National Park Service ranger from Tupelo, Mississippi, spent an estimated 500 hours on the model 1927 Ahrens-Fox fire truck shown at *right*, then gave it to his father. He made the chassis from black walnut, and used maple, birch, padauk, zebrawood and five other exotic species for accents.

Besides the work and the wood, the fire truck is special because his father, Harold Smith, retired after a lengthy tenure as fire chief in Waterloo, Iowa. When he started as a fire fighter in 1931, the Ahrens-Fox trucks were familiar equipment. Now he has one of his own to display on the mantel. "My father was a master carpenter, too, and I owe him my appreciation for wood," says Dale.

Black walnut and nine other woods were used in this model of a 1927 Ahrens-Fox fire truck. It measures 18" long.

Beetles' baby powder

Few acts of nature disturb woodworkers more than the discovery of powder-post beetles eating up their wood piles. Yet, at one time, this destructive activity provided a welcome product.

In his book *A Reverence for Wood,* Eric Sloane mentions an 18th-century New Englander named Rueben Dean who was nicknamed "Doctor" because of his medicinal concoctions made from plant extracts. Among his most locally popular products, though, was a fine body powder. But instead of deriving it from talc, a mineral, Doc Rueben gathered the "sawdust" left by the lyctus or powder-post beetle and pedaled it to sooth babies' bare bottoms.

Charred wood lasted longer

In early New England, posts for rail fences were split from logs of many species. After the posts were mortised for the rails, the ends destined for the ground were frequently charred in a pit of glowing coals. Because there were no preservative treatments back then—as we know them—this charring vaporized moisture and sealed the surface. With no moisture and a protective barrier, the wood didn't attract insects or fungi.

Lake Superior's logs were sunk by a "bug"

The logs being retrieved from Lake Superior's depths (see article on *page 80*) sank 125 or more years ago as they became waterlogged waiting for processing at shoreline sawmills. But there's more to the story, according to Eugene Wengert, wood technologist with the University of Wisconsin Extension Service, Department of Forestry, in Madison, Wisconsin.

"It was really a disease wood technologists call *bacterial wetwood* that contributed to the logs sinking," he says. "The bacteria—harmless to man—live without air, invade a mature tree below ground, and work their way up into the butt of the trunk at a rate of about an inch a year.

"It does several things to the tree and its wood," Wengert continues. "First, it increases the moisture content to way above what we consider normal—the wood won't float because the air in it has been replaced by water. Second, it creates fatty acids that turn rancid and give the wood a foul smell when wet. Third, it produces an enzyme that changes part of the wood's structure. So, when these trees were harvested, they were maybe 400 years old, and the bacteria had advanced significantly.

"Because of Lake Superior's chilly water, though, the bacterial action quit once the logs were submerged," he continues. "But before that, the enzyme changed the makeup of the wood tissue, actually increasing its tonal quality. That's also the reason the wood soaks up finish—it has more open pores. It added some color characteristics or character marks, too. This bacterial activity, plus the slow-growth rate, makes the water-logged wood machine differently than normal wood."

Off the Wisconsin shore of Lake Superior, near Ashland, divers find sunken, old-growth logs that were cut more than 100 years ago, but preserved by the cold water.

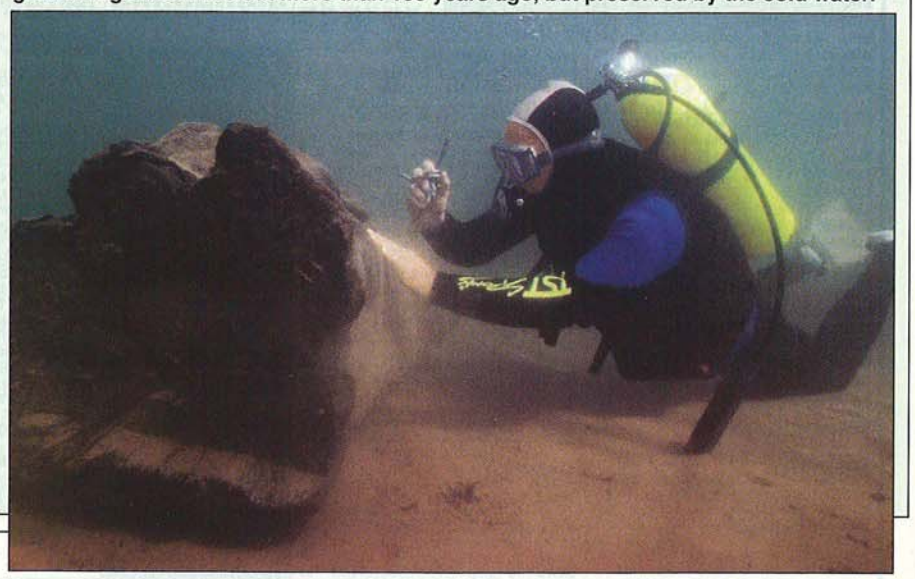

Illustration: Jim Stevenson Photographs: Courtesy of Dale Smith; Superior Water-Logged Lumber Co., Inc.

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WOOD PATTERNS
APRIL 1999 ISSUE 114

Yard Lighting 46
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Garden Markers . . .72
Country Bed 74

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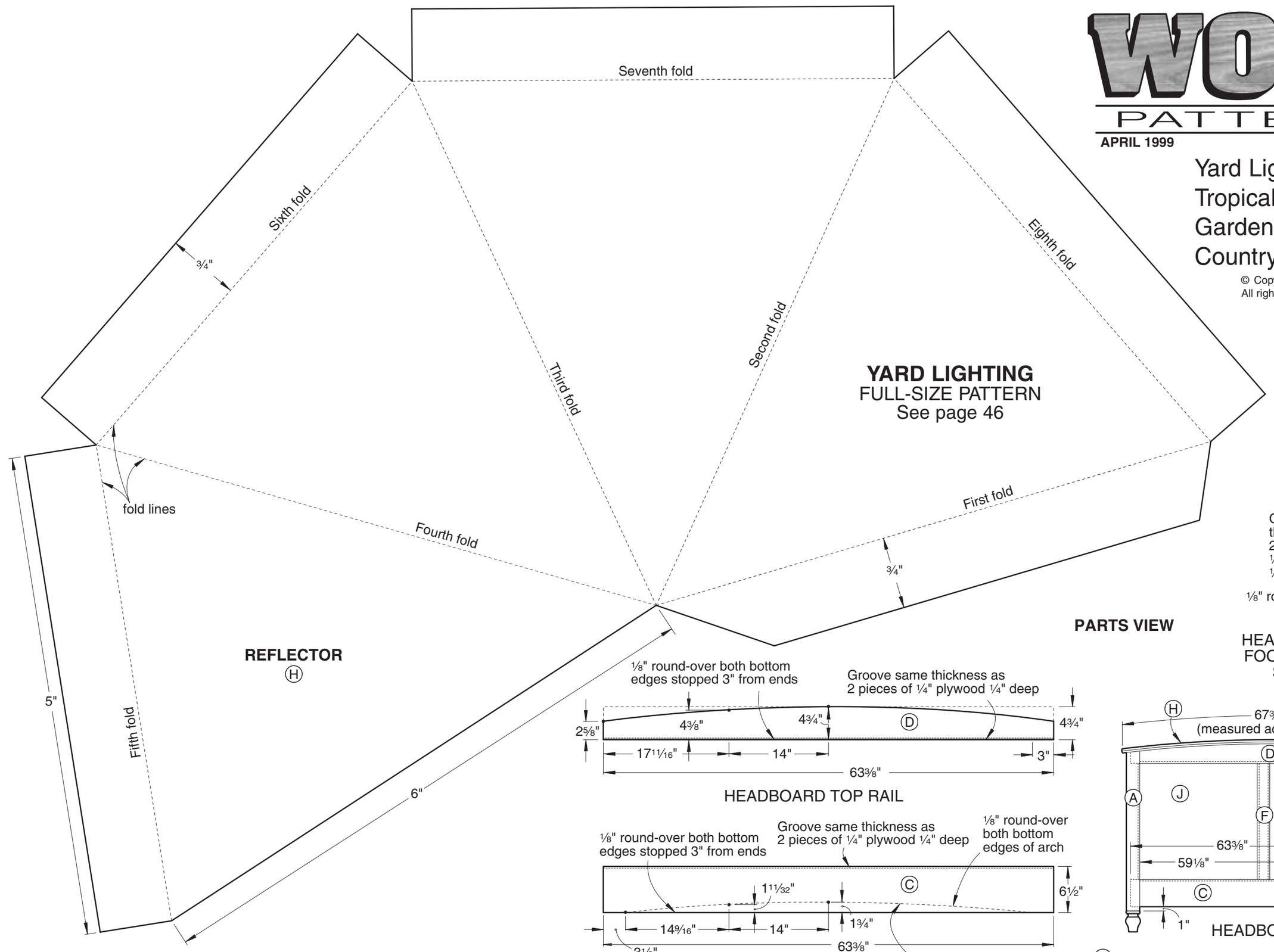
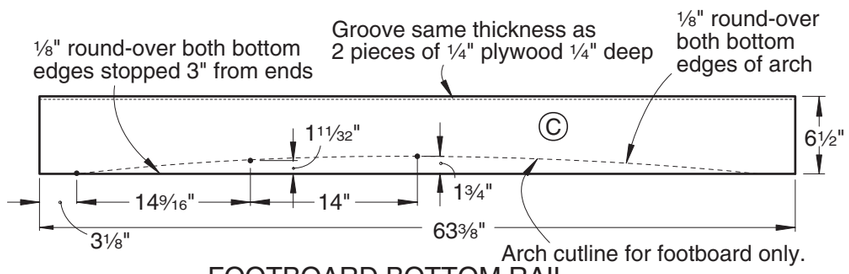
YARD LIGHTING
FULL-SIZE PATTERN
See page 46



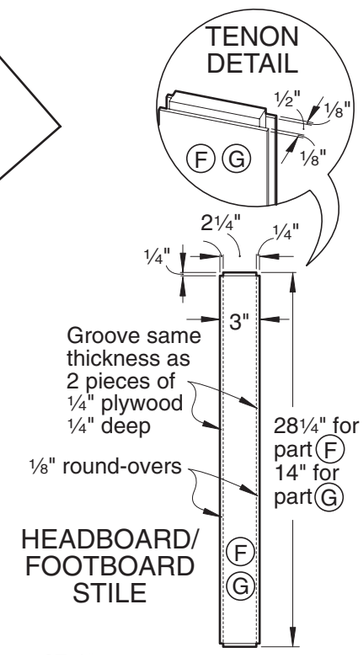
REFLECTOR
Ⓗ

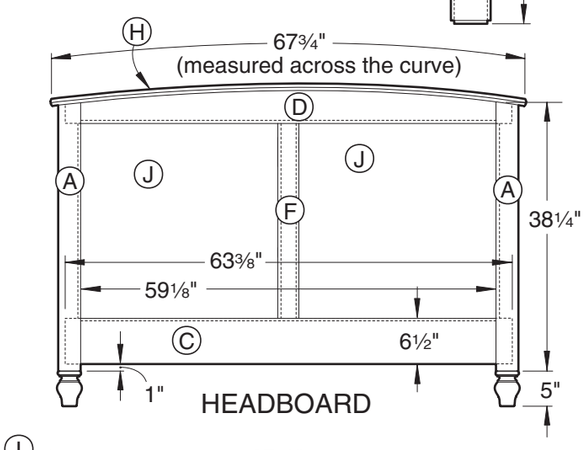
HEADBOARD TOP RAIL



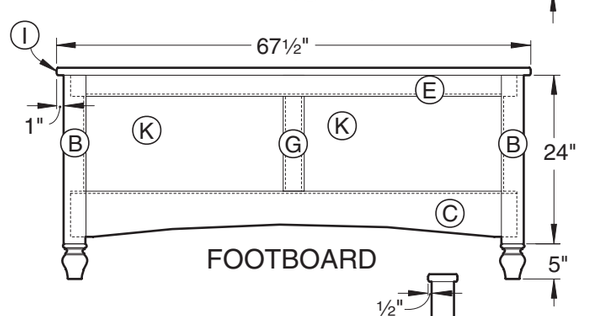
FOOTBOARD BOTTOM RAIL

PARTS VIEW

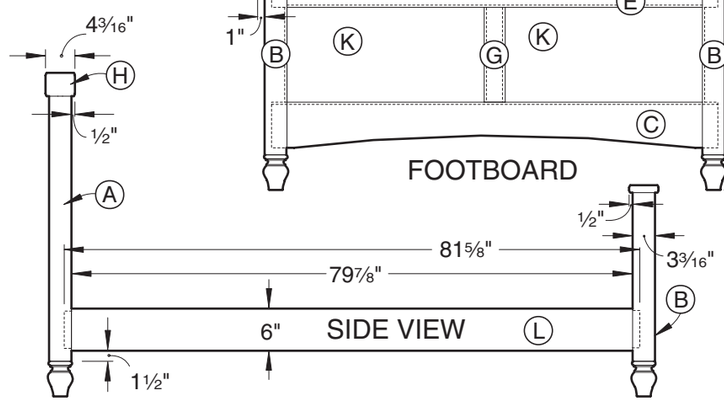




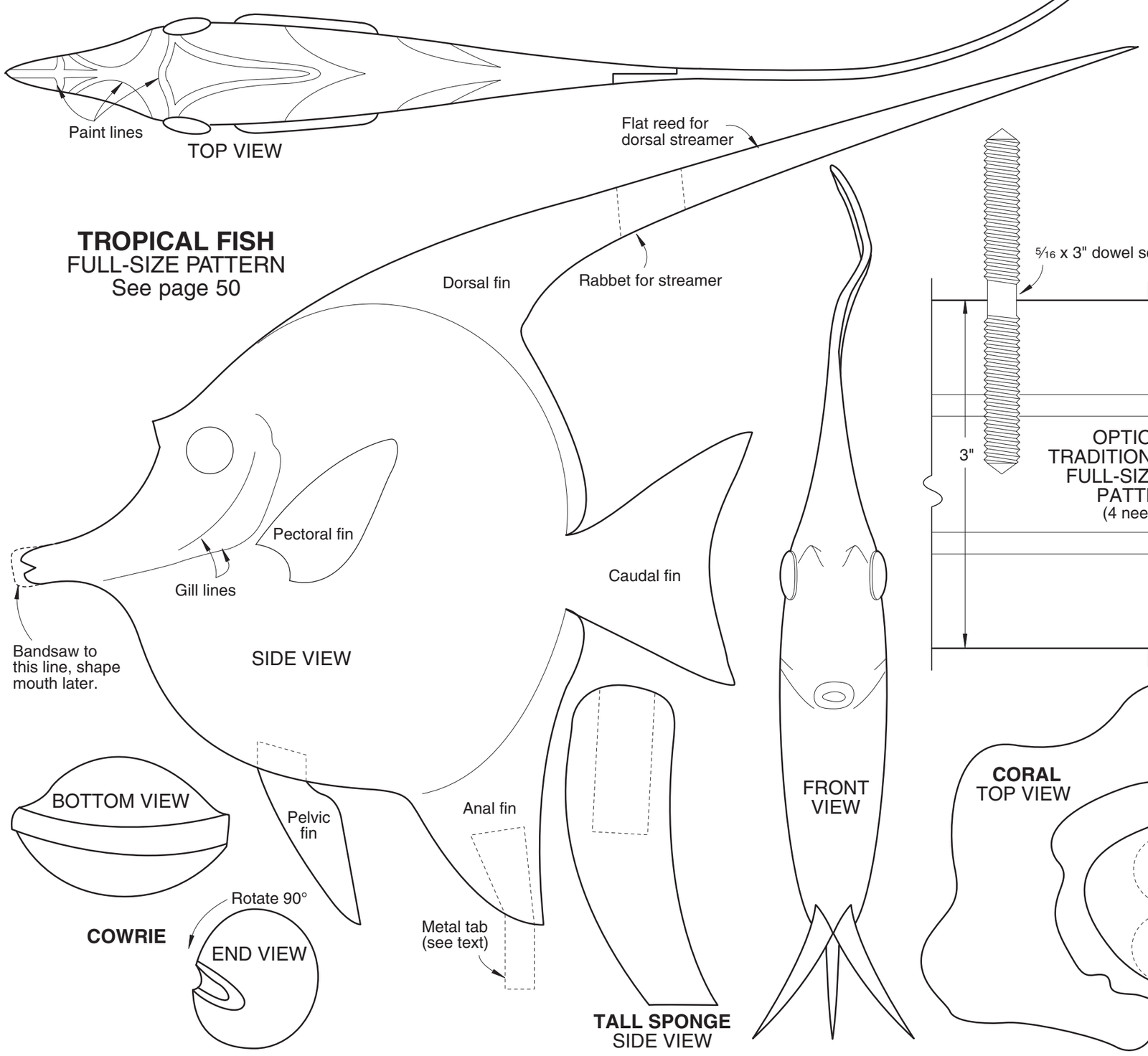
HEADBOARD

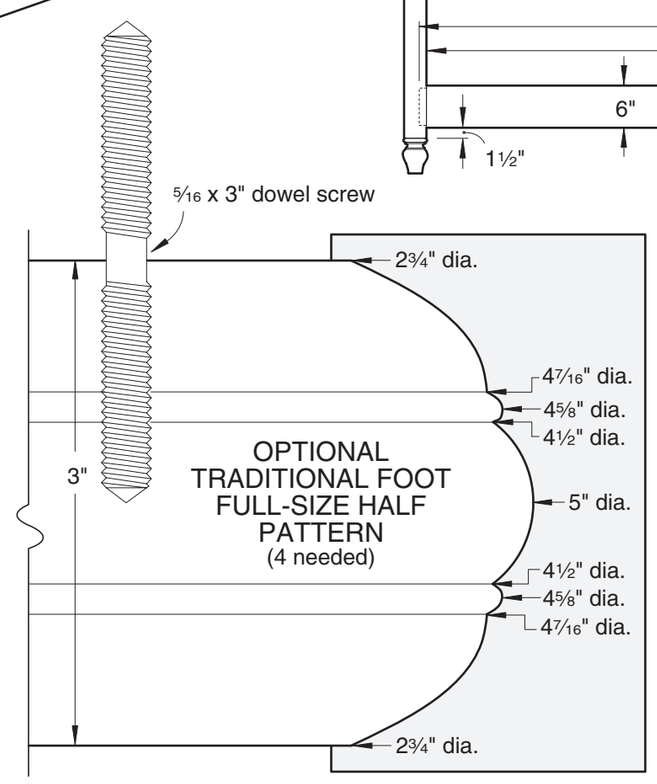


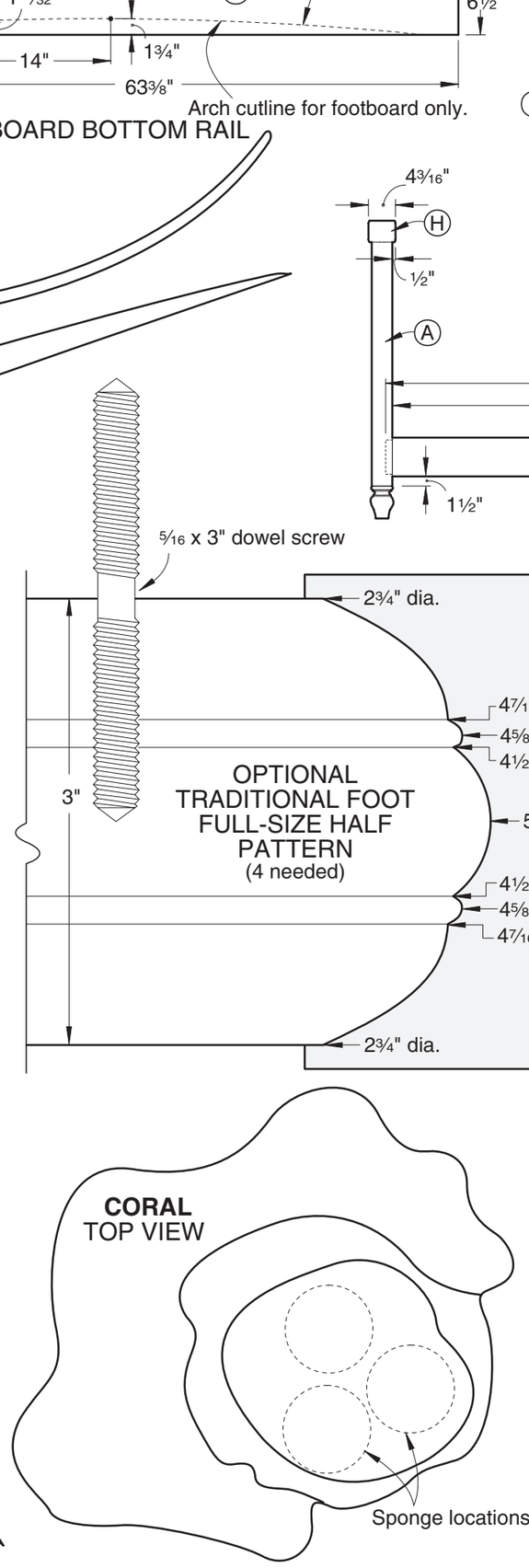
FOOTBOARD



TROPICAL FISH
FULL-SIZE PATTERN
See page 50







COUNTRY BED
PARTS VIEW AND
FULL-SIZE PATTERNS
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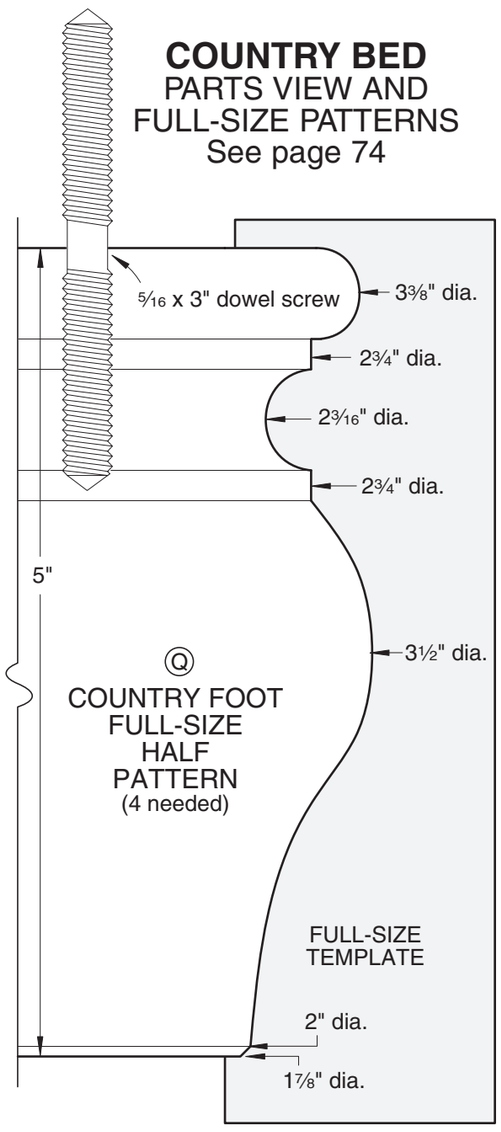


PEAS

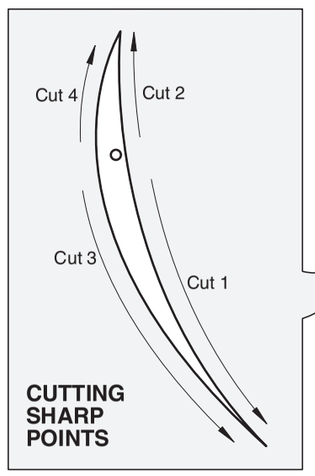
BEANS

TOMATOES

LETTUCE

GARDEN MARKERS
FULL-SIZE PATTERNS
See page 72

PEPPERS



SQUASH

CUCUMBER

CARROTS